

# Technical COMMUNICATION

*Journal of the Society for Technical Communication*

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*Journal of the Society for Technical Communication*

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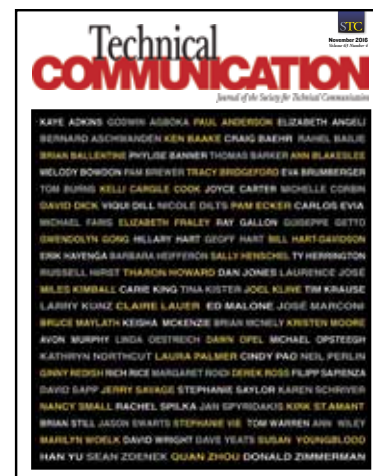
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## About the Journal

*Technical Communication* is a peer-reviewed, quarterly journal published by the Society for Technical Communication (STC). It is aimed at an audience of technical communication practitioners and academics. The journal's goal is to contribute to the body of knowledge of the field of technical communication from a multidisciplinary perspective, with special emphasis on the combination of academic rigor and practical relevance.

*Technical Communication* publishes articles in five categories:

- **Applied research** – reports of practically relevant (empirical or analytical) research
- **Applied theory** – original contributions to technical communication theory
- **Case history** – reports on solutions to technical communication problems
- **Tutorial** – instructions on processes or procedures that respond to new developments, insights, laws, standards, requirements, or technologies
- **Bibliography** – reviews of relevant research or bibliographic essays

The purpose of *Technical Communication* is to inform, not impress. Write in a clear, informal style, avoiding jargon and acronyms. Use the first person and active voice. Avoid language that might be considered sexist, and write with the journal's international audience in mind.

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- Page 3: Up to five keywords and a practitioner's takeaway (maximum 100 words) displayed as a bulleted list summarizing the practical implications of the article
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Michael J. Albers, Guest Editor

# Improving Research Communication



The idea for this special issue came from a presentation I watched at the 2014 IEEE PCS conference by Ryan Boettger, Erin Friess, and Saul Carliner (2014), (note that Boettger and Friess have an article in this issue). According to the program's session description, their presentation posed the claim that "the research and theory presented in peer-reviewed journals—including the ones in our field—are written by researchers for other researchers. As a result, this material is intellectually and emotionally inaccessible to practicing professionals." In other words, the research that academics conduct is poorly communicated to practitioners.

Academics' research is poorly communicated to practitioners. An unsurprising but disconcerting statement, considering that technical communication is inherently practical. Our field's academics (especially those housed in English departments) pride themselves on the fact that they teach courses on writing in the corporate world. Further, their students not only secure jobs, but they secure these jobs within their majors. Yet, the research conducted by those same academics has trouble reaching and being usable to their recent graduates, much less other practitioners. If technical communication is supposed to be a social science discipline with practical application, then it stands to reason that its research should,

if not be directly applicable, at least be understandable by those practitioners.

Simultaneously, there is a gulf on communicating practitioner needs to the academics. This gulf occurs at many levels. Of course, practitioners need answers for their projects; they need an answer for this specific situation now. For example, a practitioner may have a new Web interface and needs to know how to best implement X and do it by Friday. But academics don't tend to think in those specific relationships. We (I include myself) tend to think more in terms of uncovering the fundamental issues that drive the answers to give implementations of X. A practitioner may need to know what background color works best with his or her audience demographics when the font color is green. The academic view is one of figuring out how the demographics affect the more general questions driving the font/background color contrast issues. In other words, academic research does not address a specific problem (what shade of blue font is best), but, rather, deals with the bigger problem that can be used by anyone dealing with colored fonts.

One of the scary things I realized reading the draft articles for this issue is that in 1995, when I took my PhD course in research methodologies, we spent a lot of time reading about "what makes a discipline." To my distress, I

wonder why, after 20 years, are two articles in this issue (Boettger & Friess and St. Amant & Meloncon) still circling around essentially the same question? An idea of "what makes a discipline" was a concept many of us students had a difficult time connecting to research, but the answers help define the common ground and let us say, "this is technical communication" and "this is not technical communication."

If a research agenda is a defining attribute of a discipline, then divisions are worrisome (St. Amant & Meloncon, 2016). If the field is divided, especially if we are suffering from an ever increasing divide between academic and practitioner, we risk splitting into two fields. Or, in the formulations of those who write about defining disciplines, the academics may have a discipline (that contains minimal practical aspects) and the practitioners who would fail to meet the definition of a discipline (no clear research agenda). The important point of this split is not how the discipline gets defined but that there would be two disciplines. Each would go its own way with minimal interaction with the other and, eventually, the histories of the field will reference the "great split." I sincerely hope there are no future texts talking about the great split,

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as its occurrence would be a great loss for both sides. If that text does get written, I fear it will put our current time well beyond the start of the “time of the great split.”

At one level, this can be considered a classic case of two parties talking past each other. Practitioners want answers to today’s problem and academics want to give answers to more abstract, global problems. And both think their questions/answers are most important. In a very real way, both groups fail to understand what the other group needs or expects when it comes to research.

Renguet, in this issue, examined the improvement in patient training when the current method is replaced by a multimedia presentation. We commonly use this structure to conduct our research; an academic spends time with a corporation, an improved product is released, and an article is published. Good start. We need to understand practitioner research needs. Now the real research begins. What part of the change caused the improved scores? What parts of the change were detrimental? What are the underlying human behavior factors to consider? How does the target audience influence those answers? These questions motivate more fine-grained studies—studies that a corporation will not hold up shipping a product for but which they can use in future products and other companies can use in their products. The first study is practitioner research. The second sequence is academic research; research that can be fed back to the practitioner community. A goal of this special issue is to extend

these conversations and motivate more sustained feedback loops. St.Amant and Meloncon’s article provides specific ways to improve those loops.

For an example, let’s look at the size of icons on a webpage. Fitts’ law has been around for over 50 years and most designers will quickly quote it when making statements about target sizes. Let’s assume we didn’t have that knowledge. Practitioner research would care about designing the current set of pages. It would run some tests, decide this particular size works, and move on to finishing the product. It’s the academic researchers who need to see there is a problem with figuring out the proper size of the targets and doing the generalized study that would lead to the actual formulation we call Fitts’ law. An equation that helps everyone. A goal of this special issue is to try and start that conversation to begin those feedback loops.

Consider Hannah and Lam’s article (this issue) for a sense of what technical communication practitioners are currently discussing. For example, the authors found that DITA was the most frequent word used in tweets coded as technology, which represented about one-third of all tweets on technology. How much academic research has been done on DITA? How many courses, at either the undergraduate or graduate level, are offered that teach DITA or even the concepts of general XML? Practitioners are using DITA, they are applying content strategy, they are doing single sourcing. They know they are

not doing them perfectly, but they also don’t have time or the research knowledge to figure out how to improve them. The questions they have and the information they need are not being communicated to the academic world. Of course, those questions may get transformed into a more general question, but that is not happening, because the conversations are not happening or the participants are talking past each other (e.g., Andersen, 2014).

Practitioners care deeply about the future of their field (Cleary, 2012). However, as Hannah and Lam found, their discussions differ greatly from academics in that practitioner conversations seem to return to a discussion about technology—a topic that academics historically have not studied regularly or nearly as often as rhetoric, pedagogy, or genre (Boettger, Friess, & Carliner, 2015). Accordingly, academics should consider engaging in rigorous, empirical research about specific technologies and tools beyond understanding their rhetorical potential, which is something that practitioners have called for (St.Amant & Meloncon, this issue).

Perhaps part of the failure of the conversation is because it seems that many PhD programs are shifting away from technical communication to emphasize the rhetoric surrounding technical topics. The programs educating our upcoming scholars, who will be teaching both future practitioners and academics, are missing part of those students’ future audience. In this issue, Boettger and Friess found that rhetoric was the



only topic limited to academic publications. Rhetoric is a sub-field of the humanities and technical communication is (or should be) a social science that deals with human behavior and improving communication. (As I sit here in late July writing this, I can feel the hackles rising on the necks of some academic readers for daring to make such a claim.)

“Rhetoric should inform technical communication, but rhetoric, when explored in the abstract, is not technical communication” (Boettger & Friess, this issue). Technical communication research should ideally apply rhetorical strategies to offer explanations of technical communication processes and combine rhetoric with psychology theories of human behavior to provide strategies for better communicating information. St.Amant and Meloncon (this issue) had one of their practitioner interviewees mention needing to understand human behavior: “how individuals used a technology to achieve communication-based tasks and how technology design affects communication behavior.” Practitioners need research on human behavior and on effectively communicating information; that is what a social science researches. If we look at what gets published in our own academic research, we find very little that looks at these issues; sadly, the field suffers from a lack of empirical research, in general (Boettger & Lam, 2013). Empirical research can use rhetoric as one of its tools for studying how to communicate technical information and how human behavior affects

the communication. Granted, we must also acknowledge the on-going discussion of research relevance versus fulfilling tenure requirements and dealing with non-technical communication members on tenure committees (Kynell & Tebeaux, 2009).

When we look at PhD curriculum, rhetoric spans across the courses in the programs. That seems to be the one staple curricular element with multiple courses looking at different aspects of rhetorical analysis. But, if we consider practitioner research needs, are technical communication programs are teaching enough usability and UX? Is it taught as a single course or does it have a solid underlying foundation for all of the courses, as rhetoric does? Do future technical communication academics receive enough training in usability and UX to teach, research, or practice them? Do future technical communication academics receive enough training in empirical methodologies in general (Albers, in press)? Without a solid foundation, it is difficult for it to become part of the discipline research agenda. Is this what is driving the academic world to be so different from the practitioner world? That is not where we want it to be and it would be highly detrimental to the future of technical communication as a profession and a social science.

On the academic side, we need to worry. The practitioner world is evolving at a high rate and the ivory tower is shielding too many people from seeing the change. I once had a full professor (who by any definition was a member of the “old

guard”) tell me that our job was to teach students how to write—when they got jobs, they could figure out to apply that writing to their situations. And we most definitely only teach writing, never technology. However, I’m sure he equated software and technology; he saw teaching technology as a Word how-to course. That is not useful, but understanding technologies such as single sourcing or content management which then have to be applied to many different specific situations is very useful. The practitioner figures out a way for the technology to work; the academic has time to figure out if that way is efficient or if it can be improved. The end result is a cyclic and holistic approach to research that has relevance to more people than just the researcher. First however, we need to understand what practitioners consider important and to learn the current practices so we have a baseline for measuring the efficiency of new research. If technical communication is a practical discipline, then its research agenda should have a solid component focused on studying those practical aspects.

This brings up the question of why academics aren’t doing better research for themselves and/or better research for practitioners. It’s a complex problem with many facets. Working with practitioners, figuring out what is needed, and then doing that research is neither trivial nor “fast research.” There are competing demands on academic time, and too many tenure committees value quantity over quality. I’ve also heard some faculty

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say that technical communication is just a subset of composition/rhetoric—to which I can only say, NOT! Coupled with that is the issue that few PhD programs are providing enough empirical research training. So researchers are trained in rhetorical analysis and not empirical research. One consequence is that existing faculty publish rhetorical analyses so students believe that is what they should publish.

In the workplace, technical communicators are starting to call themselves documentation designers, content specialists, information architects, content strategists, and a dozen other names. But their work is often still the same job that technical communicators have been doing for years, mostly. That *mostly* is important, as many of those practitioners with those job titles lack a technical communication background. Job ads for these new titles list wanting degrees in many related disciplines, but technical communication is often missing from the list. When I was at the University of Memphis, I knew one person who was very active in the local STC chapter. A few years later, I meet her at the IA Summit, and she told me that since she had taken a job as an information architect; she had dropped out of STC. Academic technical communication research isn't providing much support for information architect (or content strategists, for that matter). Library science now owns information architecture and houses the academic programs.

The train for information architecture has left the station, and

we're still on the platform. The train for content strategy is loading, and we don't see too many academic researchers with tickets. More trains will leave until we learn to fit our research agendas and students' needs into also helping meet the needs of practitioners. Boettger and Friess write that academics should ideally feed off the information provided by practitioners and that practitioners should thrive based on the research published by academics. Unfortunately, the primary finding in their study was that content forums for exchanging information were fulfilling the same needs they were in 1988 (this issue). Practitioners in general, and most definitely our students, are no longer working in the world of 1988. Is academic research still in 1988, or has it boarded its own train that runs on a separate, diverging track?

At this point, there is clearly a disconnect that needs to be addressed to improve communication about research between academics and practitioners. This issue contains five articles that look at that issue. As befits a complex issue, each one takes a very different viewpoint. Together, they help to create a foundation that can help us move forward on improving the flow of research information within the profession of technical communication.

Lauren and Pigg used social network analysis to examine interview data collected from eight technical communication entrepreneurs. Knowledge does not simply flow from academics to practitioners or vice versa. Most

importantly, their analysis clearly shows that the conversation is multifaceted and cannot be simply viewed as an “us versus them.” Of all five articles, this one, because of its methodology, does the best job of building the big picture of the academic and practitioner divide.

Boettger and Friess analyzed the content within 1,048 published articles over a 20-year period within core professional and academic forums. They found differences in the topics that reflect the different interests of academics and practitioners. They also note that their results more or less match similar studies published over the past 27 years. Moving beyond the coding and analysis, they consider the implications of their findings and discuss ways to improve the communication of research findings and research needs between academics and practitioners.

Hannah and Lam examined practitioner blog postings to determine the consistent topics and article types. Not surprisingly, they found the most common topics were technology, professionalization, and communication strategies. Blogs have become a dominate method practitioners use to share knowledge, and academics should figure out how to use them to improve the sharing of research. During their analysis, Hannah and Lam came to a realization that “we are simply not having the conversation in the right way, in the right place, at the right time.” They put forth reasons for why our conversations move past each other and how to improve the overall quality of the conversation. A

significant part of the need for this special issue exists because of this very problem.

St. Amant and Meloncon interviewed 30 practitioners to help establish how they viewed research and what they considered important. It is interesting that many articles—including those in this special issue—discuss communication research but seem to consider the definition of research as obvious. Yet, a practitioner's view of it is not the same as an academic's view. A practitioner's results can help shape the conversation about improving communication by helping to clarify the audience on the practitioner side.

Renguette provides a focused example of how academics and practitioners can work together. She relates her experiences working on a team tasked with improving a patient education application for people considering bariatric surgery.

Collectively, these five articles reinforce the fact that, as with any highly complex set of interactions, there is no simple solution. There is no single answer for how to improve communication between practitioners and academics working within technical communication.

- We need to see research as an interrelated, iterative cycle, with a goal of improving technical communication products.
- We need to work on improving the conversation to allow communication rather than talking past each other.
- We need to work on understanding practitioner

and academic research needs and wants.

- We need to remember we are all part of a single discipline and work to improve that discipline.

Perhaps after an owl brings my letter and I complete my time at Hogwarts (or its American equivalent), I'll be able to wave my wand and bring about a solution. Until then, we'll have to approach the problem from multiple angles and keep working to solve it. The future of technical communication depends on it.

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## About the Guest Editor

**Michael J. Albers** is an STC Fellow and a professor at East Carolina University. He is the founder and chair of the annual Symposium on Communicating Complex Information (SCCI). His primary teaching areas are editing and information design. Before earning his PhD, he worked for 10 years as a technical communicator and performing interface design. His research interests include communication of complex information and human-information interaction. He can be reached at [albersm@ecu.edu](mailto:albersm@ecu.edu).

## On the Cover

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Listed in alphabetical order are the academics and practitioners who serve as reviewers for the journal. In this special issue on the subject of the exchange of research to and from academics and practitioners, I am pleased to acknowledge their contribution to the research of the field and to the success of *Technical Communication*.

Sam Dragga, Editor

Cover design: Heidi L. Everett

### "I GOT A PROJECT THAT TURNED INTO A \$25,000-A-YEAR GIG THANKS TO THE STC SUMMIT!"

"I spoke up in a session at a past Summit and was approached afterward by a man who was scouting for editors. He lived only about 50 miles from me, but I probably would never have met him otherwise. This encounter evolved into a \$25,000-a-year gig of interesting editing with a small firm that pays well and on time, and even holds dinners for its contractors twice a year. I always knew that I had to show up to make connections and attending the Summit proved it!"

*Bette Frick*

MY NAME IS BETTE FRICK AND

I'M AN STC MEMBER

<http://summit.stc.org>



# Toward Multidirectional Knowledge Flows: Lessons from Research and Publication Practices of Technical Communication Entrepreneurs

By Benjamin Lauren, Michigan State University and  
Stacey Pigg, North Carolina State University

## Abstract

**Purpose:** This article asks what can be learned about knowledge flows in the field of technical communication from the networking activities that independent entrepreneurs use to learn relevant information, influence practice, and build professional conversations.

**Method:** The article uses qualitative methods informed by theories of social network analysis to examine interview data collected from eight successful technical communication entrepreneurs.

**Results:** Technical communication entrepreneurs actively publish and read publications to learn relevant information about the field, influence practice, and build professional conversations. Academic publications are often outside these entrepreneurs' scope of interest because of differing timescales, venues, and key terms; however, they often read publications of and publish toward the professional networks generated as they connect with others for business interests.

**Conclusion:** The field must continue to find ways to bridge academic and practitioner divides by seeking common venues, shared timelines, and collaborating on emerging topics of interest. However, these divides are more complex than simply among academics and practitioners, as knowledge flows in the field have become multidirectional rather than two-sided.

**Keywords:** networking, entrepreneurship, publication, research, social networks

## Practitioner's Takeaway:

- Technical communication entrepreneurs network to learn relevant information, influence practice, and build professional conversations.
- Professional social networks are central to how knowledge is shared and circulated in the field.
- The field of technical communication includes a variety of influencers who work across multiple timescales, communicate in different venues, and engage with divergent key terms as they build knowledge about practice.
- There are a number of ways academics and practitioners can find common ground to learn from each other's research, such as connecting on social media, attending conferences and meet-ups, and collaborating on relevant, mutually beneficial projects.



## Toward Multidirectional Knowledge

### Introduction

For quite a while now, the field of technical communication (TC) has questioned whether its academic research is accessible to practitioner audiences. Yet, this essential question tends to overlook that TC's knowledge flows are not unidirectional. That is, both academics and practitioners produce discourse that actively shapes what technical communicators know and do, but this discourse can seem unfortunately relegated to separate silos. Anecdotally, academics and practitioners express resentment over this divide, though both groups likely pay inadequate attention to the other's growing and emerging knowledge base. This divide, too often, results in a lack of collaboration and cooperation on research efforts, even though working together would likely yield a great deal of value.

The concern about an unproductive divide between TC academics and practitioners has been well documented in several areas of the field's research, particularly in how academics approach instructional techniques in the classroom. Meanwhile, discussions related to how the field establishes theory appear to be relatively lopsided in favor of academic conversations. Rebekka Andersen (2014) describes this problem in her recent discussion of the development of content management (CM) knowledge in TC, in which she notes that researchers "have not done a good job directly engaging in the robust and extensive CM conversations taking place outside of the academy" (p. 117). By directly attending to these industry conversations in her article, Andersen positions industry "thought leaders" as crucial knowledge-makers with valuable ideas, resources, and technologies that academics must take seriously (p. 116). But, where do industry leaders' conversations exist? How and where can academic and industry discourses come into dialogue?

In this article, we address the divide between academics and practitioners by describing how TC entrepreneurs access, learn, and disseminate relevant information. To do so, we report on a portion of a recent qualitative research project analyzing the professional social networking practices of TC entrepreneurs. In the project, we interviewed eight technical communicators who own independent or small businesses. The results indicate in what ways participants felt the knowledge flows in TC were fractured, with little practitioner knowledge and research represented in academic work.

However, results reported in this article also address the special issue theme by providing rich examples of the multidirectional flows of information that TC entrepreneurs access and influence. We believe that understanding these professional networks and the infrastructures that support them can provide opportunities for more engagement across the field's traditional silos.

Below, we review literature on the academic-practitioner divide and the state of current publishing practices. Next, we describe how the study used qualitative interviews and a grounding in social network theory to better understand the social ties and practices that support independent TC work. Based on this theoretical context, we identify networking practices that TC entrepreneurs use to create and disseminate useful knowledge before reporting on the conferences and venues where this work happens and its relationship to academic and industry spheres. Building from these findings, we argue for the important role that TC entrepreneurs can play in bridging academic and industry domains and offer preliminary ideas for increasing interaction among TC's various knowledge networks. Specifically, we suggest that the field reconsider the importance of its multiple influencers, multiple timescales, and multiple venues or communication infrastructures. In order to become more connected, academics and practitioners can build on shared venues, times, and terms, but doing so will entail confronting challenges similar to those that have historically separated academics from practitioners.

### Literature Review

As a result of organizational and individual work to develop a rigorous disciplinary TC research agenda, the field now has a well developed understanding of constraints that have limited academic research in TC. Academic research has been historically shaped by faculty members' individual academic tenure requirements, their struggles to legitimize TC research methods and approaches within English departments, and the challenge of finding adequate research support given the field's diverse methods and lack of training for developing researchers (Rude, 2014; Lam, 2014; Blakeslee, 2009). In particular, Barbara Mirel and Rachel Spilka's 2002 collection examined academic-practitioner divides and helped the field understand how and why

collaborating with industry professionals is not always valued given the constraints many TC faculty face. Mirel and Spilka argued that these constraints not only hindered the ability for academics and practitioners to effectively collaborate but also reinforced fragmentation that affected the field's potential influence. Thus, the field needs "strategic planning and decision making" to extend technical communicators' voices "beyond publication departments" (Mirel & Spilka, 2002, p. 4).

Various industry-academia collaborations were posited as the most practical way out of the divide, including activities such as internships, usability studies, short-term research, and curricular advisory boards. However, contributors also maintained compelling arguments for why academic-practitioner divides are culturally systemic (Dicks, 2002) and may even be necessary to retain the traditional goals of public education (Bernhardt, 2002). Generally, however, contributors in the collection argued for a move away from understanding knowledge flows as deriving either from academia toward industry or from industry toward academia, seeing instead the possibilities for a "two-way reality" (Rehling, 2004, pg. 92) that would build on the best of what each domain had to offer. In order to embrace this multi-directional knowledge base, for example, Shriver (2002) advocated for academic researchers to alter their dissemination practices to create writing that can not only reach practitioner audiences but also position itself for uptake by stakeholders in the public sphere.

In the years since Mirel and Spilka's collection, constraints on academic research have no doubt continued to influence research design, exigence, and credibility in academic discourse. However, it is now possible to see diversity across TC's peer-reviewed journals that include a push for more research that is both rigorous and applied (Carliner et al., 2011). Importantly, the years since Mirel and Spilka's collection have also brought changes to models of scholarly TC publication. For instance, academician Clay Spinuzzi (2013) and industry professional Richard Sheffield (2009) both self-published well-respected books aimed at academic and industry audiences. Recently, the MIT Media Lab launched the *Journal of Design and Science* (<http://jods.mitpress.mit.edu>), which is "hosted on an open-access, open-review, rapid publication platform" (About, para. 3) as a means to rethink ways of peer reviewing and collaborating across diverse fields,

including, perhaps, counterparts in industry. These shifting dynamics are evidence of slowly changing cultural attitudes toward publication, offering new options for exploring dissemination in ways that Shriver (2002) suggested were necessary. As well, some historically prevailing expectations about publication within the humanities have shifted with the increasing importance of digital humanities and computers and writing venues, where digitally born texts are being published at academic venues such as *Enculturation*, *Present Tense*, and *Kairos*. Meanwhile, social networking sites like LinkedIn and Twitter enable practitioners to share links to a range of publications with varying ease (e.g., links to professional blog posts, newsletters, and articles). Additional open-access examples in digital circulation seem to appeal to both academic and industry professionals in TC, such as *TC World* and *User Experience Magazine*.

From the practitioner side of the "two-way reality," practicing technical communicators are increasingly likely to work outside of publication departments in a range of positions with different names and expectations. They are also likely to spend part of their careers working independently as contractors, consultants, or in some form of self employment. While traditional technical writing positions in corporations still exist, of course, many practitioners chart a different kind of career course through work with multiple firms that may lead to different cultural dynamics and expectations than those that Dicks (2002) described as forming the attitudes that shape practitioners' likelihood to work with academics. In terms of publication and writing, technical communicators are also likely to extend beyond traditional internal publication formats. Many are using blogs, social media, and other social networking sites to connect with current and future clients and employees (Ferro & Zachry, 2014). For example, Blythe, Lauer, and Curran (2014) use survey research to suggest that the forms of writing that graduates of professional and TC programs value most in their lives include not only instructions, manuals, and presentations but also emails, websites, and blogs (p. 273).

These emerging communication infrastructures provide intriguing platforms for academics and practitioners to interact and discuss research. It seems as if these platforms are, in some circles, already being actively used. Whether those circles enable interactions

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that cross the academic-practitioner divide remains unclear, however. In the research project we further outline below, we illustrate how entrepreneurs in TC engage with research, learn, and disseminate information to others. The next section of this document addresses our study's research methods and preliminary results.

### Studying the Networks and Networking Practices Supporting TC Entrepreneurship

This article expands on a portion of results from a larger research project (see Lauren & Pigg, in press) that studied how entrepreneurs in TC engage with personal and professional social networks to build and sustain their careers. Central findings of the research describe how participants used networking for activities that have been described as central to independent work, such as learning to run a business (Poe, 2002), marketing to attract clients (Broach et al., 2006; Killoran, 2010), or obtaining legal advice (Glick-Smith & Stephenson, 1998). To further clarify, in this article, we more closely examine the activities participants engaged when producing, finding, and circulating useful and relevant professional information for the broad field of TC (e.g., from content strategy to product documentation). With this focus in mind, we revisited our existing data with newly refined research questions:

- What networking practices enable TC entrepreneurs to access and share relevant professional knowledge?
- Which network ties are most relevant to TC entrepreneurs' practices of accessing and sharing professional knowledge?
- What opportunities and challenges do these networking practices and ties create for research collaborations and exchanges among TC academics and practitioners?

Using these research questions as a guide, we focused our analysis on the specific portion of the data that helps to describe how TC entrepreneurs' professional social networking activities influence how information, such as research, is accessed and shared.

### Research approach and theoretical framework

Despite strong anecdotal evidence suggesting ongoing growth in independent labor (i.e., contracting, consulting, and business ownership), research on

practices of TC entrepreneurship has been surprisingly limited. As evidence of independent work, industry support structures were long ago created, such as the independent consulting and contracting special interest group of the Society for Technical Communication (STC). In addition, a special issue in *Technical Communication* has addressed the topic (Barker & Poe, 2002) and the STC has gathered and shared data on the phenomenon (STC, 2004; STC, 2005). Given the limited research on TC entrepreneurs, we developed qualitative interview research to provide descriptions of entrepreneurs' social networks and networking practices and to serve as a starting point for additional inquiry. While limited in terms of generalizability, interview studies and in-depth qualitative research are useful in such cases for evoking themes and details that can be further explored in later, larger-scale studies.

Our qualitative data collection and analysis procedures in this study were informed by concepts that emerge from interdisciplinary theories of social network analysis (SNA). Broadly, SNA directs researchers' focus to the importance of social relationships that shape potential social action, attending in particular to how relationships between individual actors create structures through which resources and forms of capital are shared and circulated (Scott, 2013; Wasserman & Faust, 1994). With its focus on how relationships are created and sustained, it is no surprise that SNA has a strong tradition in the scholarship of entrepreneurship studies, where business success depends upon social connections and embeddedness (Greve, 2003; Dubini & Aldrich, 1991). While much SNA research in entrepreneurial studies has consisted of quantitative tracing to determine how entrepreneurs monetize networks toward venture success, recent scholarship has called for qualitative analysis to analyze the quality, cultural relevance, and value of entrepreneurial networks (Slotte-Kock & Coviello, 2010; Jack, Drakopoulou Dodd, & Anderson, 2004). We position our research in this vein: We have conducted qualitative case research conceptually grounded in network theory, building on its key ideas to generate relevant qualitative details.

To explain, we next define key concepts that ground SNA studies and compare our approach to other research in TC. Key concepts within SNA include actors, or individual social units; links, or the relationships that connect actors; and structures (also called networks, fields, or environments), which are the

relational units that result from multiple connections among individual actors (Scott, 2013; Wasserman & Faust, 1994). In addition, because our participants choose to work independently and our larger project focuses on how they build and sustain careers, we build on the SNA concept of *egonets*, or social networks that form around individuals (Rainie & Wellman, 2012; Wellman, 1993).

We drew on these concepts in our interview protocol by first positioning each interviewee as a central actor—the focal point of the *egonet*—and then designing questions to elicit their descriptions of the most relevant social actors (i.e., people and organizations) influencing their careers. By mapping these relationships, we were able to better understand the social fields that individuals perceived around their work, as well as to understand the communication and technology infrastructures (i.e., platforms, professional social groups, personal social groups) that supported their development. By relying on self-reported personal network data in a form that invites thick qualitative detail rather than precise quantitative tracing, our approach is related to but differs from similar prominent work in TC that uses SNA approaches. For example, Read and Swarts (2015) examine textual artifacts that mark a prior work trajectory to reconstruct links among relevant actors in particularly generative moments of knowledge work, and TC scholarship has also employed quantitative structural network tracing to map the effects of communication links on knowledge work (Burton et al., 2012). To contrast, our research uses SNA concepts to draw out details and descriptions, because our goal is to generate themes that can ground further research.

### Participants, data collection, and analysis

Between November 2015 and January 2016, we conducted interviews with eight individuals who affiliate with the field of TC and who own small businesses or intentionally work as independent contractors. In recruiting participants, we recognized that significant differences exist between the experiences of consultants and contractors (Ames, 2002) and that not all contractors or consultants purposely choose to work independently. However, we chose to study independent work with well-established entrepreneurs to understand how they achieved success. During the interview period, participants represented geographical regions across the United States, Canada, and Central Europe. Participants were

also evenly distributed across male and female genders. Though most participants in the study did not use the term *technical communication* in their company names or job descriptions, all perceived themselves to be conducting work that could be considered within the domain of the field. Their self-identified job titles were as follows:

- Participant 1: User experience consultant
- Participant 2: President, principal/owner, and only consultant of company
- Participant 3: President and owner of content strategy company
- Participant 4: Consultant and contracted technical publications manager
- Participant 5: Content strategy consultant
- Participant 6: President, principal/owner, and only consultant of company
- Participant 7: President and only consultant of company
- Participant 8: President/executive in small business (former CEO)

Interview questions positioned participants as central social actors and gathered participants' career narratives while prompting them to name other relevant social actors that shaped their careers at various points in time (i.e., during their education, during different moments of their employment history). Interviews were conducted via Skype and ranged from around 100 minutes to around 200 minutes, with most lasting around 120 minutes. After completing interviews, we transcribed and segmented them by conversational turns (i.e., by speaker). We began data analysis by coding interviews to identify networking ties, networking practices, and networking technologies that were named, as well as for factors shaping decisions to work as an entrepreneur. Next, we conducted a second coding pass to categorize and characterize networking ties, practices, and technologies, and to create data visualizations of participants' *egonets* (i.e., personal networks) as derived from interview data. Through collaborative memoing, we developed narrative interpretations of findings.

## Results

Our findings explain the various ways participants actively create, find, and circulate information to advance professional knowledge in TC. While most



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of these activities would not be considered research by the standards of university institutional review boards, they provide insight into the communicative and technological infrastructures that support the development of practitioner knowledge over time. Through activities such as maintaining a social media presence, reading and publishing in venues affiliated with professional organizations, and presenting at conferences, our participants gain access to knowledge and help develop it. Dicks (2002) suggested that academics and practitioners are divided by disparate perceptions about information, where academics tend toward sharing information to advance knowledge and industry professionals protect it for company profit. However, our participants blur these information sharing boundaries because they often work outside the culture of a single organization and are invested in building individual social capital to sustain business into the future. As a result of this shift in objectives, information-sharing practices become a central activity in their work. We discuss these practices through a focus on three motivations for reading and publishing: learning, influencing, and building.

### How TC entrepreneurs network to learn

Participants reported being invested in looking outside corporate environments for information that can help solve day-to-day problems or gain expertise needed to take on new projects. This finding aligns with Thomas Barker and Kathryn Poe's (2002) description of independent TC workers as lifelong learners who need to continually "extend their expertise or education" (p. 152). For instance, all participants described attending professional meetings and joining professional organizations as avenues for gaining access to relevant information. Participant 1 described his selection of professional organizations in this way: "I usually take a couple hundred bucks each year and I pick a semi-random professional organization and I give them my money for a year, right? And then that gets me their newsletter, their journals." Professional organizations were of central importance to determining the kinds of publications participants read and regularly accessed. Many were unlikely to go out in search of published research except when they needed to learn something specific for a project but were very likely to read things that were "pushed" to their inboxes by a professional organization when they determined over time that the organization had meaningful information

to offer. In this way, social media not only provided access to people but also enabled mechanisms for filtering information so that participants received information that was immediately relevant to them. Participant 2 suggested, "I have [LinkedIn] set to pull all of the relevant stuff from a couple of discussion groups and they push that to my inbox. I don't go out and look for it." Ease and convenience of accessing information was therefore an important factor for how our participants engage in learning activities.

Participating in professional meetings was also an avenue for meeting people who became important ongoing, durable information resources. At conferences, often through professional organizations, participants connected with individuals to find relevant information. Then, social media would be used to help strengthen and maintain those connections. For example, Participant 1 explained "conferences [are] a form of semi-formal education" and discussed how social media became a way to extend conversations begun in more traditional venues:

I [use Facebook] to stalk them a little bit and say oh they've joined a new company now. I didn't know that, right? I thought they were in New York City and now they're in LA. Well, that's my excuse to learn a little bit more about them.

Five of our eight interviewees noted the importance of just chatting with other professionals as a central way to learn and gain access to new information, whether through local face-to-face meetups or social media use. Participant 5 illustrates "chatting" online in this way: "I know people all over the world because of all these conferences, and so on, and we all follow each other, and we all exchange comments, barbs, information, useful tips, etc. And sometimes we debate." A great deal of information sharing and learning seems to take place at conferences specific to practitioner audiences, and these conversations continue online through social media.

### How TC entrepreneurs network to influence

While participants were invested in learning from others, they also actively sought to influence the field by contributing to existing conversations and seeking to begin new ones. All eight participants described speaking in public—particularly at professional conferences—as a key way to influence others. Participants considered these activities to be influential because they enabled



them to change how others conducted their work. Participant 2 explained,

I speak at a lot of conferences. There are people that I've affected that I have no idea who they are, because they were 1 of 50 people sitting in a room. They may never say anything to me but they've changed. Something I said changed how they looked at their work.

Many of the participants were also prolific authors of influential books and articles. For example, seven of the eight participants discussed how important producing professional publications had been for advancing their careers. The goal of publishing was rarely to theorize TC; instead, publications were to help others get work done. Participant 6 explained how this method of influencing functioned as a way to sustain business but also as a way to influence how the field works. For instance, Participant 6 said,

A lot of companies bought my book and had it in their library. And so for example [software company] solicited me to come there and give them a lecture to their user interface group and tech comm and online help and media and game development people. And that was based on just having my book.

Publishing helped created avenues of influence that had not previously existed but also led to building and maintaining relationships with other professionals.

Building relationships locally—both in geographical regions and across professional subgroups—was also important to how participants sought to influence knowledge in TC. At times, relationships were built as a means for bridging subgroups in industry that did not often engage with each other. These participants acted as ambassadors for the field, working to create less stratification and bridge divides that exist across industry divisions as well as between industry and academia. To illustrate, Participant 6 argued,

Many people in design don't know the people in writing, and the people in writing don't know the people in design. And so there's a suspicion there and practitioners don't necessarily know the researchers and the researchers don't necessarily know the practitioner side. I tried in my own small way to contribute to helping people see each other's perspectives.

Other participants also focused on using influence to increase the status of their work in their geographical regions. Participant 1, for example, worked diligently to bring user experience concerns to the Midwest, whereas Participant 2 purposefully networked with e-learning and instructional design professionals in the Mountain West to increase dialogue among TC and these fields. These relationships also provided instances for sharing information across TC subfields.

Participants additionally sought to influence professional knowledge by circulating and curating ideas using less formal platforms. While many participants reported keeping professional websites and portfolios in line with those discussed in recent scholarship (Killoran, 2011, 2012), six of eight of the sample discussed writing blog contributions to disseminate relevant information. Some participants kept personal/professional blogs, whereas others used public aggregation and circulation technologies such as Longform or Medium. In a discussion about diversity, for instance, Participant 8 noted, "I plan on writing some very serious, intense essays on diversity in the technology sphere using Medium." In addition to blogging, participants influenced others by curating and contributing discourse to Twitter and LinkedIn. Participant 2 explained, "I'll have a reading day or something and I'll read 6 or 7 articles and I'll tweet about all of them." These activities also seemed to support building the kinds of infrastructures many of the participants sought to construct both to further their careers, but also to advance knowledge in the field.

### **How TC entrepreneurs network to build conversations**

TC entrepreneurs were not simply learning and influencing; they were also building new conversations across platforms, organizations, and relationships that actively expanded the reach of TC as a field. In many ways, Participants were working to identify best practices and/or create spaces for the profession where it had not previously existed. For example, Participant 1 discussed a recent alliance with a local art museum that enabled him to share his information architecture expertise but that also required him to learn more about visual literacy. Participant 1 explained, "The most educational parts for me are when I'm organizing something, so like organizing a workshop, right?" Many participants had been (and still are) leaders in professional organizations and working groups, and, in that leadership capacity,

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sought to build networks and frameworks for independent TC, information design, interaction design, information architecture, user experience, Web standards, international writing studies, and plain language—just to name a few. In short, to influence, participants built formidable careers.

As such, several participants identified as “thought leaders” and used their influence to maximize positions in professional organizations and educational groups. Participation in these organizations and groups also helped them build new conversations while sustaining business interests. For example, Participant 8 described it this way:

[Part of my job is being a] thought leader and so I spend an incredible amount of time on the road speaking, right? That’s why I . . . I’m on the road speaking giving talks all the time, which is also lead generation and a variety of other things. We give master classes 2 or 3 times a year in different parts of the world.

Notably, Participant 8 described being a thought leader as connected to educating others. In other words, being a thought-leader is about what she knows and does rather than simply working to attain more business. As Participant 8 described, “I don’t like selling, so the funny thing is that I end up selling through education, right? People go and listen to me talk. So I am selling, but I am selling by being a thought-leader.” The recursive nature between the role of thought-leader and entrepreneur is important to how spheres of influence are built and information is communicated.

Industry thought-leaders share a complex relationship with the financial demands of industry and the constraints of conducting and communicating what academics consider systematic, rigorous research. Participant 6 provides an interesting case that demonstrates this relationship in practice. Participant 6 is a prolific researcher and frequent research reviewer and believes that industry wants research results rather than to fund research. Participant 6 explained,

Many of the kinds of things that people want me to do don’t necessarily involve research. What they want is for me to bring the research to them, and to help them use the research on the spot, at the exact moment I walk in.

As a result, Participant 6 works to

use my money that I get from consulting to fund my own research because [when] I used to try to frame up the research for clients and see if they would pay for it, that was met with mixed results because they usually didn’t want to pay for any research. They just wanted it, and wanted it for free.

Using consulting money to fund independent research is important because it shows another example of the recursive relationship between being a thought-leader and an entrepreneur. In terms of process, Participant 6 uses the following strategy:

I like to use my practical projects as a kind of an intellectual engine to get my juices going to think about problems people are really having and ask the question how does what they’re interested fit into what I’m interested in and could I write something that would be interesting to both academics and people who are practicing in the field.

This broad appeal also suggests Participant 6 bridges the gap between industry and academia in productive ways, building new conversations while also sustaining personal financial interests.

### Networking ties relevant to accessing and sharing information

Participants’ networking ties—the individuals and organizations with whom participants connected—can help clarify who participants understood as most relevant to sharing and gaining professional knowledge. To what extent are academics and industry thought leaders in dialogue in the conferences, blogs, Twitter, and LinkedIn conversations that TC entrepreneurs referenced? Which professional organizations and conferences did TC entrepreneurs find most meaningful? To understand participants’ relationships to academic domains, it is useful to understand that their positions blurred boundaries between industry and academia. Most participants held an academic role as a part-time or visiting faculty member or industry liaison. These positions, in some cases, led them to question whether, in Participant 6’s words, “maybe we’ve made too strong of a distinction between [academic and industry] and that people think that you are either this or that.” Yet, all participants detected and described

a persistent gulf between TC academic and practitioner interests, even referencing the scholarly conversations as moments of lost opportunity for advancing the field. For example, Participant 6 argued, “it seems as though the gulf between the academic world and the practitioner world has increased even though Rachel Spilka and Barb Mirel did their book 10 or 15 years ago.” Other participants expressed concerns that academics who have “been in the system too long” lose touch with how the business world works and struggle, when given the opportunity, to effectively lead professional organizations in TC (Participant 4).

A closer look at the social ties participants understood as most relevant to learning, influencing, and building reveals potential tensions between TC’s academic research dissemination and its entrepreneurs’ needs and practices. To provide one example of these

disconnections, we detail in the following section an egonet analysis of Participant 8. Participant 8’s case reflects the larger sample because of the importance she places on professional organizations (and many of them). It furthermore challenges academics and practitioners to consider the scope of relevant venues where TC knowledge is exchanged. Participant 8’s case also suggests alternative routes through which professional affiliations with the field can evolve.

### Case example: Participant 8

Participant 8 attended two post-secondary institutions and credits her mentors in those institutions as helping her find a passion for semantic logic, critical thinking, and problem solving. Participant 8 believes these interests ultimately positioned her well for working with the development of the Internet and World Wide Web.

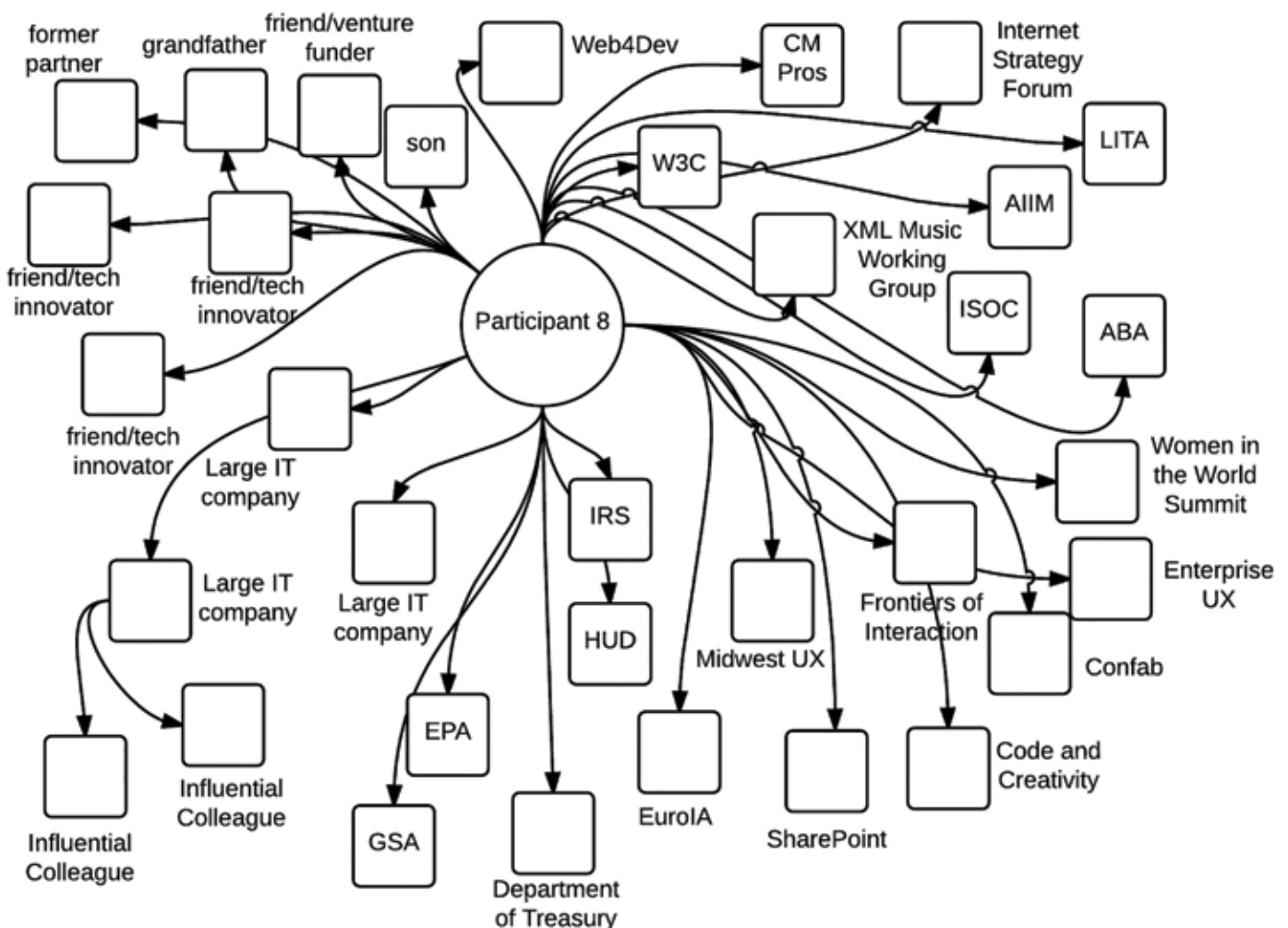


Figure 1. Egonet representation for Participant 8

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After her undergraduate degree, Participant 8 entered graduate school at a prestigious private US institution with the goal of becoming a college professor but left the program on the advice from a mentor who suggested she move to Silicon Valley for a part-time job coding HTML at a prominent IT company. She later left this coding job to work full-time in a different prominent IT company. Eventually, she left this job as well to begin a small consultancy because of a combination of personal and professional factors. A mentor in the last IT company where she worked suggested that she was well suited for management around the same time that she realized industry work hours were limiting her ability to parent in the way she desired.

Figure 1 illustrates the individuals and organizations Participant 8 referenced in response to questions about relevant social resources supporting independent work. Academic ties did not extend beyond her graduate school education, and she was not influenced by TC's academic research culture nor by the professional organizations known for bringing together TC academics and practitioners. While Participant 8 does attend academic conferences, she seeks out affiliations with the legal community and library and information sciences (e.g., the American Bar Association and the Library and Information Technology Association) because of their implications for online information management. By contrast, as Figure 1 additionally illustrates, Participant 8 has been very active in a range of working groups driven by government, industry, and professional practitioners (e.g., the Internet Strategy Forum, Internet Society, Web4Dev, Confab). These groups and conferences span the research and practice of information literacy and management, user experience, content strategy, information architecture, Internet strategy, and standards and governance. She also networks with Internet developers, women entrepreneurs, and many others. Participant 8's connections to TC developed through relationships fostered in the user experience and information architecture and management communities.

### Discussion

Building from Participant 8's career trajectory and interconnectedness with various professional organizations and venues as a case example, we now broaden our conversation once more to discuss what's

challenging about the communication of research among academics and practitioners by focusing on challenges of venues, timescales, and terms.

### The challenge of venues

From Participant 8, we can see a number of challenges for the possibility of academic-practitioner interaction: They often share information in separate formal venues. Many of the conferences and working groups that Participant 8 frequents might be considered out of TC's knowledge boundaries and infrastructures while also being cost prohibitive for academics. This was a concern across the sample. For example, Participant 7 explained that "academics don't have the budget for the work that I'm doing" and he's therefore unlikely to seek out conferences they attend. Practitioners and independent workers may also prefer oral venues (i.e., just chatting) for exchanging ideas because of the legal complexities of publicly sharing work affiliated with major corporations, even when independents retain authorship (Killoran, 2011).

### The challenge of timescales

While this was less a concern for Participant 8, many participants echoed a resonant theme from earlier literature on the academic-practitioner divide: that TC academics and practitioner exigencies do not work on the same expectations about time. For example, Participant 2, who holds a master's degree in TC, described joining the IEEE Professional Communication Society to fulfill the requirements of a position but did not continue her involvement because

with the academic organizations I felt like I was doing a lot of contributing and not getting a lot of information back from them. And part of that is because I operate—[my] business operates—on a completely different timescale from academia.

Where academia is "slow moving" and includes "a lot of deep dives into things," Participant 2 said she chose against an academic career precisely because she doesn't "want to be down there in the trenches doing the research." Instead, she suggested, she wants to "benefit from the results of it" in a way that is responsive to the reality that "I move at a different speed." Participant 4 says, "the stuff in the journal can be important but for the most part I don't care because it doesn't have any direct effect on me." These cultural expectations echo



Dicks' (2002) explanation of why industry/academic collaborations often fail, because "academics believe in investing in the future" through slowly developing research and "become disappointed or discouraged" by the more short-term needs of practitioners (p. 17).

### The challenge of terms and identities

The final challenge that Participant 8's discussion raises for the productive exchange among academics and practitioners is one of terminology and identity. Participant 8 understood her work to be within the TC umbrella but was much more likely to use terms such as information management, content strategy, and user experience to discuss her work and, as a result, participated most in venues that foregrounded these terms. The data indicated this was overwhelmingly the case with TC entrepreneurs, even with participants who were more connected to the Society for Technical Communication. For example, Participant 4, a long time STC member and independent contractor, suggested,

One of the STC's problems is that we call ourselves the STC and the problem is that nobody thinks of themselves as technical communicators. They think that that's something that their parents did. But they are content specialists or information architects or you know any of another dozen titles, all of which really say technical communicator but they don't understand it and the differences. And you know you stack all of these titles up and . . . 99 out of 100 it's a distinction without a difference, but you can't tell them that.

Issues related to terms and identities seem to indicate the field has grown more amorphous and complex as it has developed over time. The broad TC umbrella as a term or identity for those engaged in emerging work, however, appears to remain problematic.

### Conclusion: Opportunities for New Connections

Rather than illustrating a "two-way reality" between academics and practitioners, the knowledge flows of TC are becoming more multidirectional. Practitioners do not belong to a simple homogenous category, and, of course, academics do not either. TC consultants, contractors, and small business owners often occupy

space between industry and academia as they contract work, publish as influencers or thought leaders, and in some cases conduct and review systematic research as well (such is the case for Participant 6). The participants in this study also affiliated with practitioner and industry professional organizations not always accessible for many academics. If TC, ten years ago, was focused on trying to assemble two sides of a coin, it now faces the challenge of bringing together multiple knowledge networks shaping theory and practice. A fully interconnected field may not be possible or even desirable under these circumstances. However, improved strategies for bringing the field's many discourses into conversation might start with first recognizing the multiple kinds of influencers in the field. Furthermore, we can learn from the field's independent workers, who already think and act across boundaries of knowledge and practice. To further discuss what opportunities might be possible across the multi-directional knowledge flows of TC, we return to the challenges of venues, timescales, and terms/identities to conclude our discussion.

### Shared venues online

Professional organizations and meetings still provide an opportunity for the exchange of discourse among academics and practitioners. However, seeking out more informal venues may provide a viable option for exchanges across traditional divides. Participant 6 suggested that academics must find middle ground between academia and industry, through "ways to promote [ideas] to a mass audience, whether that would be on a venue like LinkedIn or on Twitter or through technical reports or newspaper articles or magazine articles or popular journal articles." Participants often modeled these contributions by participating (reading, commenting, and referencing) in informal online exchanges.

Academics can take a lesson from these online conversations. While many academics have financial and publication constraints that prevent them from attending industry conferences, they can exchange research more actively via blogs, Twitter, and LinkedIn. Our participants stressed that both they and "captive" industry practitioners want to benefit from the results of research. However, Participant 1 mentioned that "academics aren't that engaged in LinkedIn," which is a venue that many participants saw as central to organizing and maintaining their professional contacts (i.e., Participant 8 called it a "rolodex"). If academics



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aren't present in these spaces, they have no entry in that digital Rolodex. Notably, academics who were mentioned as relevant network ties often already had this kind of online presence. For example, Participant 3 mentioned one specific case:

I pay a good bit of attention to Carlos Evia at Virginia Tech, who's one of the few people that's doing more techie stuff on the academic side. So that's one. All [the relevant field influencers I follow] are all on blogs and have a social media presence and that kind of thing, and certainly they produce valuable information.

Curating digital venues for academic work appears to be one way to participate in conversations accessed by practitioners.

On the other hand, organizers of practitioner-focused conferences might consider some of the financial constraints and realities many academics face. One particular suggestion is to consider tiered pricing for practitioner conferences. For example, in 2016, registering for the STC Summit costs \$1,395 (STCb). There is a student price and tiered pricing for members but not for academic colleagues. In fact, the nonmember price is listed at \$1,695. The rates for the conference seem to target corporations willing to pay a high cost to send employees to represent a company or to learn. However, the cost for the registration of the STC Summit alone eclipses most annual academic travel budgets. Creating a more cost effective registration rate as a metaphorical olive branch may increase academic engagement in practitioner conferences.

### Shared timescales

Several participants mentioned that they did not have time to seek information unless it was to produce a presentation or to help them answer a question that was necessary for completing a contracted project. Participants also stressed a need to have information pushed to them in timely and relevant formats in order to access relevant research. Academics can take a lesson from this need as well by ensuring research is written in clearly accessible language and pushed into channels where it can become findable when it is needed. Research needs to be present not only in the field-shaping pace of books and academic articles but also the "just in time" pace represented by the

social media outlets that often support practitioners' in-the-field or in-the-moment learning exigencies. We believe that publishing academic ideas in accessible and findable spaces can allow for a great deal of creativity in delivery and format. Opportunities certainly exist for writing trade magazine articles based on ideas discovered through research. In addition, publishing study abstracts and article drafts (when granted permission) online and sharing information on platforms such as ResearchGate can help create access to research when it is needed. In some cases, podcasts can be produced and published for practitioner audiences, as well as slideshows and screencasts.

Once again emphasizing the constraints of academic work, practitioners can recognize that the push to make research results available in informal channels comes at an interesting time in the development of academic evaluation procedures. Even with continued perception of academia as "slow-moving," many academic researchers feel pressure to publish more quickly in response to academic timetables. For example, Blakeslee (2009) suggests that many untenured academic researchers sacrifice projects that they see as interesting or meaningful in order to publish quickly. As one assistant professor in her study put it, "I've tended in the past year or two to find more efficient ways of getting research published—rhetorical, textual analyses or quickly accomplished empirical research" (p. 137). Understanding publication pressures surrounding tenure can help create avenues for potential collaboration. Academics are often looking to conduct research in ways that are both high-quality and efficient. Also, academics do research to make a difference. Do not misunderstand, we aren't suggesting it is the practitioner's job to collaborate with academics or vice versa. Rather, it is possible that academic and practitioner timescales for doing research could be more aligned than previously thought.

### Shared terms and identities

Lastly, TC researchers must carefully consider how to connect to the naming conventions emerging from multiple practitioner subfields (e.g., user experience or information architecture). Of course, conversations about the tensions among field diversity and internal coherence are not new in the field. Academic TC has good reason for developing consistent terms from within its own traditions and discourses; however, academics

must illustrate how those terms are related to and intersect with the language emerging from practitioner communities. It appears one reason the apparent divide grows is that academics and practitioners often talk about the field and the work it is doing as separate groups using different terminology.

A lesson both academics and practitioners can take from the participants in this study is to find spaces online to engage with and influence others. In practical terms, this engagement can conjure previously unforeseen connections and ways of thinking, doing, and acting. As well, both academics and practitioners can seek to build spaces to make collaborating on research a practical endeavor that is mutually beneficial. For example, academic research projects that involve practitioner participants can add value through making the research a reflective activity that improves practice. Essentially, the goal for collaborating could be to purposefully bridge existing gaps, much like the participants in this study do to build their reputation as thought-leaders in the field.

In the end, the motivations and activities of most participants in this study were guided by sustaining business goals and financial needs, but their approach to this work offers insight into the accessibility of research across the multidirectional flows of information across TC as a field. Challenges working together on accessing information flows will certainly remain, as academics work to retain rigorous and systematic analyses to test the discourse emerging from practice, and practitioners seek accessible information that helps them get work done, professionalize, and progress in their careers. However, there are some indications that new ways of orienting to TC knowledge are developing, and that the profession's independent industry leaders are driving these developments. We have long known that a divide between academics and practitioners exists. In fact, we have described how and why the divide functions and exists as it does. What is left is to start doing something about it.

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# Academics Are from Mars, Practitioners Are from Venus: Analyzing Content Alignment within Technical Communication Forums

By Ryan K. Boettger and Erin Friess, University of North Texas

## Abstract

**Purpose:** Technical communication research should link the academy to industry and sustain both with a foundation for solving problems and identifying new areas of inquiry. However, the publication needs and motivations of academics and practitioners have resulted in content alignment issues so divergent that it oftentimes appears that both parties are from different planets.

**Method:** We empirically analyzed the content within 1,048 published articles over a 20-year period within core professional and academic forums. We coded the articles for variables related to topic and audience. Data were analyzed through descriptive statistics and correspondence analysis.

**Results:** Our field's core content forums have evolved little over the last 27 years. Results also indicated distinct differences in article topics and audience that reflect the varying interests of academics and practitioners. *Intercom* and *Technical Communication Quarterly* emerged as the most defined forums.

**Conclusion:** The incongruity within professional and academic articles further suggests that we are a fragmented discipline. We recommend that our current content forums adopt structured abstracts and implications statements to unify our research and that researchers seek alternative audiences for their scholarship. We also call on practitioners to strengthen their involvement in research, either by contributing to scholarship or by volunteering their organizations as research sites.

**Keywords:** academy-industry relationship, content analysis, correspondence analysis, research, technical communication

## Practitioner's Takeaway:

- Professional forums align with scholarly forums on content topics, such as genre, communication strategies, collaboration, intercultural communication, and usability and user experience.
- Professional forums also differ from scholarly forums. *Intercom* frequently produces process- and profession-oriented content as well as content on professionalization, technology, and editing and style, which benefit a variety of audiences, including writer/content developers, generalists, senior writers, and managers.
- Practitioners need to invest more in the field's research. We call on practitioners to contribute more to scholarship or volunteer their organizations as research sites. Solid practitioner-focused research answers compelling questions that can have a strong indirect value in preserving jobs and increasing salaries.



*Ideally, academics should feed off of information provided by practitioners, and practitioners should thrive based on the research published by academics. The two groups can mutually benefit each other. In reality, however, practitioners and academics often live on two different planets, with little interaction or contact between the worlds.*

*(Tom Johnson, "I'd Rather Be Writing," August 5, 2015)*

A continuing conversation in technical communication is the relationship between the academy and industry. For over 30 years, one specific conversation involves the palpable academy-industry divide when it comes to the research of the field (Boettger, Friess, & Carliner, 2014; Bridgeford & St.Amant, 2015; Carliner, 1994; Goubil-Gambrell, 1998; Kimball, 2015; Pinelli & Barclay, 1992; F. R. Smith, 1985, 1992; St.Amant & Meloncon, 2016). Our study extends this conversation with an empirical content analysis of 1,048 technical communication articles published over a 20-year period. Understanding the content alignment (or lack thereof) among academics and practitioners inventories our past and facilitates our future.

Research links the academy to industry and sustains both with a foundation for solving problems and identifying new areas of inquiry (Goubil-Gambrell, 1998). Smith's (2000a, 2000b) analyses of technical communication forums between 1988 and 1996 provided an important perspective on the strength and diversity of the journals and serials that published our field's conversations. Smith concluded both her pieces with optimism; by 1988, a handful of journals offered the necessary and diverse forums to advance technical communication. *Journal of Business and Technical Communication* (JBTC) and *Technical Communication Quarterly* (TCQ) were identified as significant forums for academic conversations and tenure and promotion purposes. In particular, TCQ's evolution from *Technical Writing Teacher* (TWT) reflected the overall scholarly maturity of technical communication. Conversely, *Technical Communication* (TC) and *IEEE Transactions on Professional Communication* (TPC) were publishing research and theoretical discussions from the vantage of practitioners. The professional publication *Intercom* extended this diversity, evolving from a newsletter to a magazine that could respond to current practitioner issues with efficiency and accessibility.

Yet, when technical communication transitioned into the 21<sup>st</sup> century, some of the optimism related to the applicability and impact of this research appeared to fade. Kynell and Tebeaux (2009) questioned whether our research was truly having its intended impact with industry

and outside disciplines and not instead just fulfilling tenure and promotion purposes. They directed readers to answer a series of questions, including, "Are we [academics] talking only to and among ourselves? . . . Are we writing to gain tenure and promotion, as well as legitimacy in academe, or do we want to make a difference in the practice of technical communication? Whom are we trying to reach? Who are our audiences?" (p. 139).

Some of these questions have been explored. Recently, St.Amant and Meloncon (2016) wrote that discussions to bridge the academy and industry primarily occur within our existing forums and, thus, mainly among academics. This creates what they labeled an "incommensurability" problem that fragments rather than unifies technical communication. Further, it has been observed that practicing technical communicators recognize the need for research but do not always find much of what the academy produces as valuable (Goubil-Gambrell, 1998). Tom Johnson (2015, August 5), a technical writer and creator of the blog "I'd Rather Be Writing," wrote that "practitioners and academics often live on two different planets, with little interaction or contact between the worlds" (para. 6). Blogger Danielle M. Villegas (2015, July 20) offered a similar notion, observing that practitioners and academics share a common goal in evolving the field and training the best communicators. "How can we go wrong with a goal like that?" (para. 11) she questioned.

These types of conversations are paramount to disciplines that speak to both academics and professionals. For example, fields like education and management have empirically explored the extent to which research from the academy moves into practice. Studies in these areas found that although practicing professionals have an interest in research, few regularly read research articles (Carliner et al., 2009; Lysenko, 2010). Similarly, management researchers found that managers were only familiar with about two-thirds of research-validated practices in their field (Rynes, Colbert, & Brown, 2002).

Additionally, other researchers across disciplines have sought to understand the extent of alignment between researchers and professionals. Deadrick and Gibson (2007) analyzed leading academic journals and

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profession magazines within a sub-discipline of human resources management to generate their conclusions. They found that the two publication types focused on different topics and concluded that researchers and practicing professionals had different interests.

Although many studies have explored opinions about the alignment between technical communication academics and practitioners, few studies have attempted to empirically assess this alignment. In this paper, we report the results of a content analysis on the leading technical communication content forums. Our study was designed around the following research questions:

**RQ1.** How is content broadly classified across these articles?

**RQ2.** What are the primary content areas covered in these articles?

**RQ3.** Who are the primary audiences that would benefit most from this content?

The paper has the following structure. The methods section describes how the study was conducted, beginning with identifying the sample and followed by describing the measures used to explore the sample. The results section reports the content characteristics we identified in five technical communication content forums (four journals and one profession magazine). We examine how our results contribute to the field's body of knowledge and conclude with a series of calls to action for both academics and practitioners.

### Methods

To address our research questions, we conducted a content analysis in the vein of the study of human resources management articles by Deadrick and Gibson (2007). Content analyses assess words, phrases, or relationships in texts. We define the method as "a research technique for making replicable and valid inferences from texts (and other meaningful matter) in the contexts of their use" (Krippendorff, 2012). Similarly, we apply content analysis quantitatively, which includes identifying meaning through valid measurement rules and making relational inferences with statistical methods (Boettger & Palmer, 2010). The general framework for quantitative content analysis

includes identifying the sample, developing a coding scheme, norming raters, and analyzing data.

Our sample included 1,048 articles published within five forums over a 20-year period (1996–2015). This sample was randomly selected from a population of 3,605 articles. Therefore, we coded almost 30% of the population, providing a 95% confidence level ( $\pm 3$ ).

We inventoried and numbered the population in an Excel worksheet and then identified the sample with the software's random number generator. The population included every peer-reviewed article in the four leading technical communication journals and every feature article and column in the profession magazine *Intercom*. Our forum selections included JBTC, TC, TCQ, and TPC, which were previously identified as the leading scholarly forums in the field (Carliner, Coppola, Grady, & Hayhoe, 2011; Lowry, Humpherys, Malwitz, & Nix, 2007; E. O. Smith, 2000b). We selected *Intercom*, the longest published magazine in the field, to contrast the scholarly articles. *Intercom* began as a newsletter in 1953 with the founding of the predecessor organization to its publisher, the Society for Technical Communication. The organization began publishing it as a magazine in January 1996. Therefore, we began our analysis timeframe in 1996, when all five forums were producing content. We concluded the timeframe in 2015, which, at the time of coding, provided the latest complete volume of each journal. *Intercom* published 53% of the content in the sample ( $n = 522$  articles) and the four journals published 47% of the content (JBTC = 102, TC = 115, TCQ = 127, and TPC = 150).

Once we captured the sample, we coded the 1,048 articles for four content variables: *forum*, *broad topic*, *primary topic*, and *primary audience*. Table I provides a description of each variable and its levels. Few instruments exist for categorizing technical communication content. To create the codebook, we first identified variables used in previous, similar studies (Boettger & Lam, 2013; Carliner et al., 2011). Over six norming sessions, three raters used an independent sample of articles to test and refine the coding categories.

For mutual exclusivity purposes, we coded each variable for its primary focus. For example, the *primary topic* of an article on a collaborative model for teaching international engineering students about the language and culture of a foreign research environment could be classified as collaboration, pedagogy, or intercultural communication. However, the article's primary focus

is pedagogy, so it was coded as such. Similarly, *primary audience* was coded based on who would most benefit from reading the content rather than who was most likely to read it. This approach assisted in the norming of raters and inter-rater reliability. The codebook went through 10 drafts before it was applied to the actual sample. Contact the researchers for a copy of the codebook used for this study.

Over 10 coding sessions, three raters coded the sample reported in the present study; 20% of the sample was re-coded for reliability purposes. After each session, the raters would discuss any between-rater discrepancies to better inform the next coding session. (See [Boettger et al., 2014] for a description of the preliminary codebooks and initial norming sessions.) Inter-rater reliability was calculated with Krippendorff's alpha coefficient. We calculated variables independently rather than collectively—*forum* (100% agreement), *broad topic* (80.2%), *primary topic* (82%), *primary audience* (76%)—which were all in the recommend range (Watt & van den Burg, 1995).

We analyzed the data through descriptive statistics and correspondence analysis. Correspondence analysis (CA) is a geometric technique used to analyze two-way and multi-way tables containing some measure of correspondence between the rows and columns (Greenacre, 2007). The approach provides results that are comparable to Principal Components Analysis or Factor Analysis but is designed for non-numeric data. The application of CA has grown in technical communication scholarship in recent years (Boettger & Lam, 2013; Lam, 2014). Due to its exploratory approach, CA is not a method used to test hypotheses. Instead, it reveals patterns in complex data and

provides output that can help researchers interpret these patterns. The most useful component of CA is its ability to visually organize the data in the categories into central and peripheral instances. The increasing distance of any representative of either category from the origin corresponds to a higher degree of differentiation as compared with the other members with respect to their co-occurrences with the data in the other category.

## Results

This section organizes the results around the three research questions.

### RQ1. How is content broadly classified across these articles?

Over 36% of the sample were articles classified as process-oriented and 33% were classified as product-oriented. Process articles focused on a part or all of the tasks involved in producing and delivering a product. *Intercom* published more of these publication types than the journals ( $n = 215$ ,  $167$ ). Product articles focused on a characteristic of some or all of a service or a deliverable. The journals collectively published more of these article types than *Intercom* ( $n = 193$ ,  $156$ ).

The remaining articles were either profession-oriented (18%), characterizing some aspect of the identity of a technical communicator, or education-oriented (13%), focusing on education and training for technical communicators. *Intercom* published more process-oriented articles than the journals ( $n = 159$ ,  $n = 25$ ), and the journals published more education-orientation articles ( $n = 112$ ,  $n = 22$ ).

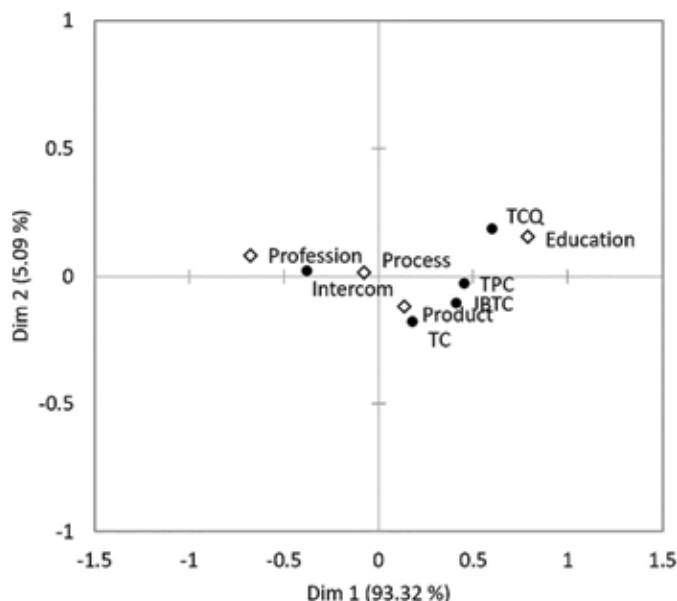
**Table 1. Description of variables in analysis**

Variable	Description
Forum	Recorded the forum as Intercom, JBTC, TC, TCQ, or TPC
Broad Topic	Classified the broad topic of each article as product, process, profession, or education
Primary Topic	Classified the primary topic of each article as assessment, collaboration, communication strategies, comprehension, design, editing and style, gender, genre, professionalization, intercultural communication, knowledge and information management, pedagogy, research design, rhetoric, technology, and usability and user experience
Primary Audience	Classified the primary audience for each article as academic, business owner, consultant, editor, general, manager, student, visual communicator, other, senior writer/content strategist, and writer/content developer.

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To further examine the relationship between *forum* and *broad topic*, we conducted a correspondence analysis (CA). CA is not an inferential measure and therefore does not determine statistical significance. The statistical output provides a chi-square value, but this value relates to the overall interaction between the rows and columns; it is up to the researcher to consult other statistical output to properly interpret the results. Throughout this section, we report only CAs that had a significant chi-square value of  $\leq 0.05$ , but we reviewed other output to determine between-variable relationships. Additional output included the eigenvalue for each correspondence, which determines how accurately the two-dimensional visualization explains the variation, as well as the quality score and inertia of the data.

There was a significant relationship between *forum* and *broad topic* ( $\chi^2 = 188.587$   $p < 0.0001$ ). Based on the statistical output, three associations were revealed (see Figure 1).



**Figure 1. Correspondence analysis of *forum* and *broad topic***

The strongest association was found between *Intercom* and articles broadly classified as profession. These types of articles focused on how technical communicators perceived their role in the field, including how the role and skillsets of technical communications have evolved as well as efforts to earn respect from third parties. This broad topic represented 28.80% of the broad topics coded for *Intercom*. The author in one of the earliest articles in the sample

problematicized the question, “what is professionalism?,” and called on technical communicators to be responsible for their work in order to gain recognition from third parties (DuBay, 1996). The evolution of technical communicators is suggested with one of the more recent pieces in the sample, where the author describes how she transferred her technical communication skillset to a marketing position (Ronning-Hall, 2012).

The next association was found between TCQ and education. These types of articles addressed how academics prepared the next generation of technical communicators. This broad topic represented 34.65% of the topics coded for TCQ. An early example from the sample included an analysis of how an academic veterinary scientist engaged with professional writing and how those experiences related to technical writing pedagogy (Lott & Barrett-O’Leary, 1996). One recent piece in the sample encouraged academic technical communication programs to deploy rhetorical performance portfolios and memory inventories to enable students to express their value in the workplace (Brady & Schreiber, 2013).

The final association was found between TC and product. These types of articles addressed what technical communicators produce, including some or all of a service or a deliverable (any finished product). This broad topic represented 41.74% of the topics coded for TC. An early example from the sample included concept mapping as a job performance aid for writers of technical documents (Crandell, Kleid, & Soderston, 1996). One recent example describes a bottom-up method for designing effective materials for international audiences using a mobile application (Lauren, 2015).

### RQ2. What are the primary content areas covered in these articles?

Our codebook included 16 primary topics. Almost 40% of the sample consisted of articles on professionalization, technology, or genre (18%, 13%, and 10%, respectively). As illustrated by Figure 2, professionalization and technology content were found most often in *Intercom*; however, genre content was equally distributed within *Intercom* and the four journals. Content on pedagogy, rhetoric, assessment, comprehension, and design were published in the four journals with more frequency than *Intercom*. Rhetoric was the only topic exclusive between forums and identified only in the scholarly journals.



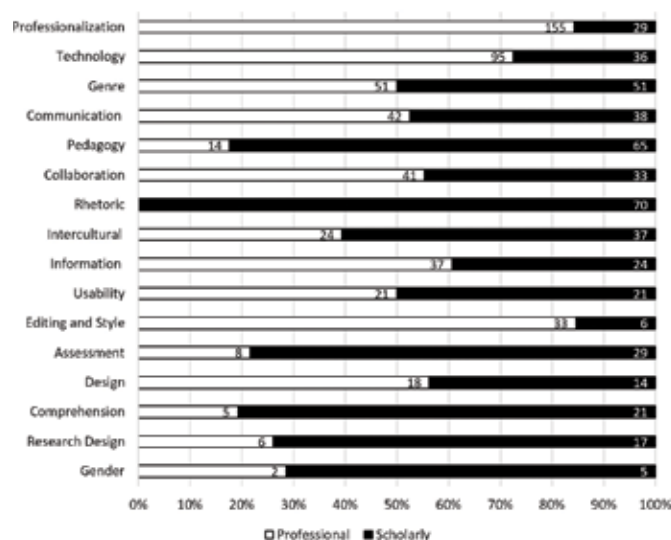


Figure 2. Stacked bar chart of *primary topic* and *forum*

We conducted a second CA to examine the relationship between *forum* and *primary topic*. Due to sample size, we only analyzed the nine most frequent topics. There was a significant relationship between the variables ( $\chi^2 = 358.136$   $p < 0.0001$ ). Based on the statistical output, three associations were revealed (see Figure 3).

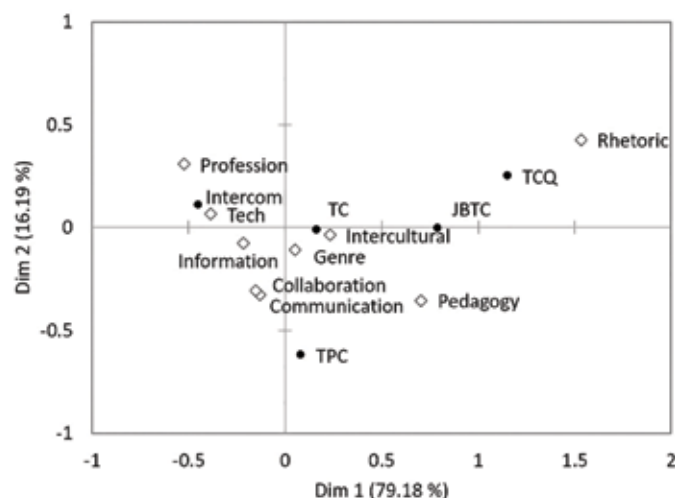


Figure 3. Correspondence analysis between *forum* and *primary topic*

The first association was between *Intercom* and professionalization. Texts coded as professionalization included discussions of professionalization issues in technical communication as well as narratives that describe the history or current state of technical communication programs and practices. This primary

topic represented 33.77% of the topics coded for *Intercom*. Examples include the earlier cited articles (DuBay, 1996; Ronning-Hall, 2012) as well as the “My Job” columns in *Intercom*, which discussed the skillsets important to technical communicators like storytelling (Raymond, 2012) or how technical communication was used in specific careers, such as rail transportation (Beaudin-Hayes, 2008).

Next, TCQ was associated with rhetoric. Texts coded as rhetoric presented a theoretical or philosophical examination with the primary objective of pursuing theory rather than applying theory and knowledge (Goubil-Gambrell, 1998; Kynell & Tebeaux, 2009). This primary topic represented 36.63% of the topics coded for TCQ. Examples from the sample included a rhetorical analysis of stakeholders in environmental education (Coppola, 1997) as well as the use of the ironic delivery sites of rhetorics surrounding the Deepwater Horizon disaster (Frost, 2013).

Finally, TPC was associated with pedagogy. Texts coded as pedagogy discussed how specific learning strategies impact students’ communication practices. This primary topic represented 19.17% of the topics coded for TPC. Examples from the sample included the application of Systemic Functional Linguistics to introduce international engineering students into the language and culture of a research environment (McGowan, Seton, & Cargill, 1996) as well as the use of the communication model framework to teach students evidence-based writing through corporate blogs (Lee, 2013).

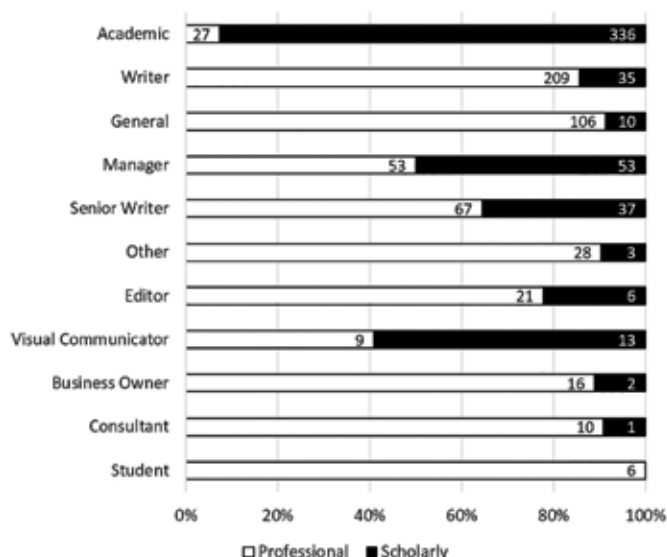
### RQ3. Who are the primary audiences that would benefit most from this content?

Our codebook included 11 primary audiences, and we coded this variable based on who would most benefit from reading the content rather than who was most likely to read it. Overall, our results showed that 35% of the content would most benefit academics, who were defined as instructors or researchers in accredited academic institutions. An additional 23% of the sample were classified as writer/content developers, who were defined as those who typically write and produce technical content on assignment. Perhaps not surprisingly, 67.7% of the primary audience for the journals were academics, followed next by managers (10.69%). In contrast, *Intercom* demonstrated more disparity; writer/content developers were the largest



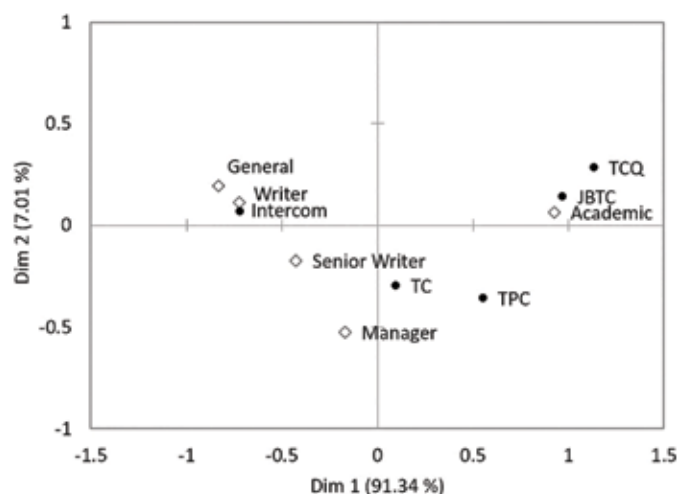
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audience (37.86%), but generalists (19.20%), senior writer/content strategists (12.14%), and managers (9.60%) were also well represented. Students were the only audience exclusive to one forum and identified only in *Intercom* (see Figure 4).



**Figure 4. Stack bar chart of primary audience and forum**

We conducted our final CA to examine the relationship between *forum* and *primary audience*. Due to sample size, we only analyzed the five most frequently identified audiences. There was a significant relationship between the variables ( $\chi^2 = 592.876$   $p < 0.0001$ ). Based on the statistical output, four associations were revealed (see Figure 5).



**Figure 5. Correspondence analysis between forum and primary audience**

The first association was between *Intercom* and the writer/content developer. This audience was defined as those who typically write and produce technical content on assignment. This primary audience represented 45.24% of the audience types coded for *Intercom*. Early examples from the sample included articles on Usenet newsgroups, CD-ROMS, and clipart (Kovner, 1998; Lindgren, 1996; Menz, 1997). More recent examples included articles on measuring information architecture value, content delivery through eBooks, and agile best practices for technical writers (Dembach, 2015; Prentice, 2014; Trunzo & De Vries, 2012).

The next two associations were found between JBTC and the academic as well as between TCQ and the academic. This audience was defined as instructors or researchers in accredited academic institutions. This primary audience represented 86.41% of the audience types coded for JBTC and 96% for TCQ. Early examples from the sample included articles on teaching American business writing in Russia (Hagen, 1998) and on the evaluation of qualitative inquiry in technical communication (Blakeslee, Cole, & Conefrey, 1996). More recent examples included discussion of how early yellow fever maps invoked power and authority over diseased space through their visual conventions and scientific authority as statistical graphics (Welhausen, 2015) as well as investigations of the social justice implications of locations and results (Agboka, 2013).

The final association was between TC and manager. This audience was defined as someone charged with producing and delivering a body of content to the sponsor by the specified deadline, within a specified budget, and at the specified level of quality. The manager is also legally culpable for a potential liability or violation of ethics. This primary audience represented 16.33% of the audience types coded for TC. Examples included articles on how to manage the effects of organizational change, the measure of productivity and effectiveness, and how technical communicators transition into the role of manager (Bottitta, Idoura, & Pappas, 2003; Carliner, Qayyum, & Sanchez-Lozano, 2014; Scott, 1996).

## Discussion

We analyzed the content alignment (or lack thereof) among leading technical communication forums. We coded 1,048 published articles from four technical

communication journals and the professional magazine *Intercom* on four variables. In this section, we discuss those results and their relevancy to previous research.

Overall, the professional magazine *Intercom* produced more process- and profession-oriented articles, and the four scholarly journals collectively produced more product- and education-oriented articles. Both forums published about an equal amount of articles on genre, communication strategies, collaboration, intercultural communication, and usability and user experience, suggesting some alignment. Content differences were also identified; *Intercom* produced substantively more on professionalization, technology, and editing and style, but the journals produced more on pedagogy, rhetoric, assessment, comprehension, and research design. Finally, *Intercom* publications were found to benefit a variety of primary audiences, particularly writers and content developers. Conversely, the journals were found to primarily benefit academics.

Results also identified defined differences between each publication forum, echoing findings from earlier research. *Intercom* and TCQ emerged as the most defined forums in technical communication. *Intercom* corresponded to the broad topic of profession, the primary topic of professionalization, and the primary audience of writer/content developer. TCQ corresponded to the broad topic of education, the primary topic of rhetoric, and the primary audience of academic. TC was the third most defined publication forum, corresponding to product-oriented articles and managers. Finally, TPC corresponded to the primary topic of pedagogy, and JBTC to academics. Each forum appeared to serve a specific need to technical communicators, which journal editors, prospective authors, and practitioners should note for their various purposes.

Perhaps the most compelling finding in this study, however, is that the content forums we analyzed are fulfilling the same needs they did in 1988. Smith's (2000ab) analyses of technical communication forums concluded with optimism about the direction of research that would speak to both academics and practitioners. On one hand, the continuation of these content areas might reflect stabilization. Our research topics and approaches indicate that technical communication is at the intersection of a host of other fields (such as writing studies, psychology, human factors, and engineering), and this interdisciplinary breadth has

historically been identified as one of our strengths. Technical communication has long grappled with issues of identity, professionalization, status, and legitimacy (Carliner, 1994, 2012; Selber, 1998; St.Amant & Meloncon, 2016). The fact that our general content areas and forums have remained unchanged for almost 30 years may indicate the solidification of the core attributes of the field.

On the other hand, the amount of defined differences within our forums when compared to the size of our field could be symptomatic of the field's identified fragmentation. Instead of providing core attributes, these differences could contribute to the "incommensurability" problem that St.Amant and Meloncon (2016) described, and "with so many disparate parts and varying areas of study," it is difficult to "come together to create a coherent, and thus, a legitimate field" (p. 3).

We should also question how the topics that correspond to our existing forums inform our future. In our study, rhetoric was the sixth most popular primary topic and the only topic exclusive to the scholarly forums. Rhetoric should inform technical communication, but rhetoric, when explored in the abstract, is not technical communication. Our research should ideally apply rhetorical strategies to offer thorough explanations of technical communication processes and provide strategies for developing related products. If we want to continue producing content that highlights rhetorical agency or postplural rhetoric of science as the objects of study rather than the facilitators of new knowledge, we should also consider if outside forums are more appropriate for these inquiries. Further, former strongholds of technical communication, such as usability and content strategy, now have robust presences outside our current forums. New forums like *Communication Design Quarterly*, *Journal of Usability Studies*, and *Journal of Writing Research* are being edited by and (or) well contributed by technical communicators. We might not collectively consider these journals as primary forums for our research, yet they provide the same competitive acceptance rates as our core forums in addition to interdisciplinary editorials scopes, international readership, and open-access appeal. We are even ceding the authorship within our core forums; recent authors are not likely to hold a doctoral degree in technical communication. A healthy population of authors are also housed in information systems and

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technology departments or management, business, and economics departments (Lam, 2014). These outside disciplines have significant influence in shaping the field, perhaps introducing another contributor to the earlier-noted incommensurability problem.

These movements come at a time when scholars are also questioning the impact of their own research. It has been suggested that some of our current forums often function as repositories for tenure and promotion materials (Goubil-Gambrell, 1998; Kynell & Tebeaux, 2009), vital to the sustainability of technical communication but perhaps not focused enough on the shared interests of the field (St.Amant & Meloncon, 2016). There is also evidence that professionals, including some who formulated the theories on which our field is based, no longer attend our conferences or participate in our professional organizations (Carliner, 1994). Additionally, the number of critical voices in technical communication have steadily increased as well as the growth in research that not only examines what we produce, but how well it is produced (Blakeslee, 2009; Boettger & Lam, 2013; Boettger & Palmer, 2010; Carliner et al., 2011; Coppola & Carliner, 2011; Lam, 2014; McNely, Spinuzzi, & Teston, 2015; St.Amant & Meloncon, 2016). Collectively, these results suggest a series of actions related to content alignment that all technical communicators should consider moving forward.

### Calls to Action

In this final section, we present three calls to actions that address the alignment issues in technical communication: 1) unify existing forums, 2) identify new audiences, and 3) engage practitioners in research.

#### Unify existing forums

If technical communicators accept that our field is fragmented, solutions for unification must be proposed. Recently, several notable scholars have called for the field to unify around a collection of research questions (Rude, 2009; St.Amant & Meloncon, 2016). There are also ways that editors of our existing forums can align content.

One approach is to adopt structured abstracts across all forums. Structured abstracts summarize key findings reported in an article and the means used to collect those findings. TC and TPC employ this convention whereas TCQ and JBTC continue to use topic abstracts:

short (100–150 word) descriptions that only identify themes addressed by an article. Structured abstracts apply to critical, qualitative, and quantitative research, and the self-contained organization advances research and promotes knowledge sharing. Generally, readers are more likely to recall information in structured abstracts than topic abstracts (Hartley, 2004). Specifically, technical communication abstracts do not always provide sufficient information, requiring authors to read the article in detail and impeding systematic reviews of literature (Carliner et al., 2011). Structured abstracts also promote enhanced communication between academia and industry. The organization makes our research findings more accessible to practitioners, offering the opportunity to not only consume more information but to retain and then apply this information to workplace situations.

Another way to align content across forums is to integrate an implications section in our research. Again, TC serves as a model with its “practitioner’s takeaway,” a 100–word bulleted list that summarizes the practical implications of the research. While not all content has to speak directly to practitioners—TCQ articles, for example, often speak to academics about education—all research should offer implications for advancing the field. Integrating this convention also allows researchers to consider their ideas from a different vantage. If we academics cannot articulate how our research implicates technical communication teaching and practice, perhaps we should consider the purpose of exploring certain topics and if a technical communication forum is, in fact, the best forum for that research. This perspective encourages researchers to more broadly consider the purpose of research and more narrowly consider how individual research projects contribute to the field’s body of knowledge (St.Amant & Meloncon, 2016, p. 8).

Beyond the written forums for research dissemination, conferences have long been reliable sources for learning about processes, techniques, theories, and research within the field. However, even those conferences that would most appeal to both academics and practitioners (STC and IEEE ProComm) have, due to various constraints and economic realities, been further fractured, with STC being a (mostly) practitioner conference and ProComm being a (mostly) academic conference.

Adopting this first call to action would create more alignment within technical communication. Unifying elements would increase knowledge consumption and

likely increase article citations. The accessibility of standalone elements like the structured abstract are also more apt to be re-printed and discussed in blogs and other electronic forums as well as motivate expanded dissemination activities, such as participating in podcasts or as a guest blogger. This exposure should only benefit academics' tenure and promotion cases. They would continue to publish in the same recognized forums, but a more accessible presentation of their ideas would better communicate their research to a variety of audiences. Finally, adopting unified structural elements would help prepare the next generation of technical communicators. Graduate students and tenure-system faculty could consume information more efficiently and, theoretically, produce more of their own research in response. Managers would have more accessible information to the field's trends, and newly hired writers and content developers would have a strong body of knowledge to apply to their assignment responsibilities.

### Identify new audiences

Technical communicators are trained to adapt to a variety of audiences for specialized purposes across multiple platforms. Results from our study suggest that our content forums have remained unchanged for almost 30 years. Therefore, our second call to action offers approaches for identifying new audiences.

Academics rely on existing forums for tenure and promotion purposes. Articles in professional magazines then accomplish little in achieving these academic pursuits. However, the currency and accessibility inherent to professional forums could greatly benefit faculty with the impact of their research as well as their national and international reputations. For example, academics should consider contributing a 2000-word *Intercom* article or a TECHWHIRL post that summarizes some of their previously published peer-reviewed studies. If we are, in fact, conducting applied research, these alternative forums only help disseminate our work to a broader audience. Kirk St.Amant, a full professor at Louisiana Tech University, routinely publishes articles in *Intercom* that pivot ideas that he theoretically discusses in scholarly forums (such as Getto & St.Amant, 2015; St.Amant, 2015; St.Amant & Rice, 2015).

In addition to modifying and better using current forums, we should create new forums for research dissemination. The concept of forum has evolved since Smith's (2000b) definition, which was developed prior

to the proliferation of Web 2.0, social media, and mobile communication. As an example, Kim Sydow Campbell, a full professor at the University of North Texas, developed ProsWrite.com, a blog where she offers opinions on technical communication as well as presents her original research and research of others. Campbell created ProsWrite because her previous research was disseminated only in journals: "I'm not ready to stop talking in those contexts," she wrote, "but I am tired of their constraints. So why not talk with fewer (or at least different) constraints here? There are things I really want to SAY" (July 2015). Similarly, Lisa Meloncon, an associate professor at the University of Cincinnati, hosts tek-ritr.com, which also publishes opinions and research. In her opening post, Meloncon wrote that she could invest her time in a blog only after receiving promotion and tenure (2015, July 8). Both Campbell and Meloncon are senior faculty, and dedicating time to more untraditional forums may be an opportunity tenure-track faculty do not have. At the same time, we should not dismiss the value these types of forums might bring in aligning our content, particularly those forums that already attract practicing technical communicators. It is incumbent upon academics, specifically ones at the senior-level, to conduct research on the ways these forums bring value not just to individuals and practitioners but also to other scholars and academic institutions.

Finally, journal editors should seek alternative audiences for the content they publish. During her tenure as editor-in-chief of TPC, Jo Mackiewicz encouraged authors to create podcasts that were housed outside the publisher's paywall. Along this line, editors and publishers could better inform their readership of at least the table of contents to allow readers to know what topics are being covered by the journals. For example, while STC is the publisher of both TC and *Intercom*, only one tweet and one Facebook post was made by the STC from April 2015 to April 2016 regarding either publication.

This second call to action encourages all parties of the publication process (authors, editors, and publishers) to recognize the value in expanding the audience of scholarly content beyond, typically, other academics, who have institutional access to research.

### Engage practitioners in research

A growing number of academics acknowledge that we need to focus on how our own research can be applied. However, practitioners also need to engage more with



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the content being created. Carliner (1994) argued that research that answers compelling questions had a strong indirect value in preserving jobs, increasing salaries, and establishing the credibility of technical communication (p. 616). Lewis (2015) offered a myriad of intrinsic and extrinsic reasons why practitioners might publish and encouraged them that “successful publication can enhance a company’s brand by virtue of increasing the external visibility and the reputation of employees” (p. 5). Our final call to action outlines how to engage practitioners in research.

Our initial proposal is that practitioners should create more of the content published within our scholarly forums; however, their professional priorities and reward regarding this endeavor is not necessarily feasible. Journals editors should account for these constraints and create new ways for practitioners to participate. For example, invited practitioners could write a 1–2-page response to peer-reviewed pieces, particularly in volumes focused on relevant topics like content management systems or intercultural communication. These responses would frame research through the lens that academics may not have the grounding to provide.

The field must also acknowledge the influence that many technical communication practitioners have in new, untraditional forums, such as blogs, websites, and social media. In turn, these influential bloggers and Tweeters should uniformly notify their readership of the academy’s advancements. For example, Johnson (2016, February 23) summarized findings from a TC article on lightweight DITA in a blog post. Given the amount of publicity provided by the publisher, Johnson’s high-profile blog undoubtedly increased awareness of this article, if not the actual readership then at least the knowledge that academics were researching this topic. The academics publishing research with relevant implications to the field could be further highlighted by participating in a podcast or being recruited to guest blog.

Finally, though some technical communication practitioners may not have the time or interest in creating and promoting content, academics still need input on what research would be valuable. As Meloncon (2015, July 8) blogged,

we need more practitioners to **reach out** and connect with local programs or make it known on social media that you’re willing to do some

things like guest lecture in a class, hold a one-hour workshop, help students network, offer to spend time just talking to faculty, etc. We definitely don’t want to overwork you, but I truly am tired of running across comments all over the Internet about how disconnected and behind the times academics are. I’m not saying that it may not be true in some cases. But what drives me batty are those folks who will complain and point fingers and never offer to share their time or expertise.

Therefore, practitioners should consider opening workplaces for primary research, including surveys, observational studies, interviews, or quasi-experiments. These types of opportunities require cooperation and time. With their tenure clock ticking, it is perhaps not surprising that many junior faculty turn to research that does not rely on the cooperation of an organization that can rescind this access at a late date (an occurrence that has happened more than once to these academic authors). Existing forums, such as the STC’s Body of Knowledge could provide a means for both practitioners and academics to align their interests in this area.

This last call to action encourages all technical communicators to enable practitioner perspectives to influence our content more. We have identified ways that practitioners could engage in the entire research process. Overall, these three calls to action require engagement from all types of technical communicators. Groups of interested parties (journal editors, bloggers, subsections of academics) must communicate, align, and devise concrete solutions to real problems. Results from the present study indicate some content alignment as well as professional and programmatic growth. What we are proposing should not impede these accomplishments; forum writers and editors should not have content dictated to them and these forums should not lose their current identity in this process.

It oftentimes appears that academics and practitioners are from different planets, rotating in their own orbits. Results from the present study imply that the primary topics and audiences within our forums have remained unchanged for almost 30 years. There is also evidence that technical communicators are publishing in outside forums and that noticeable amounts of scholars from other disciplines are influencing our content. Yet, we have the opportunity to influence this trajectory. Academics and practitioners



should align along common research goals of advancing the field and training the next generation of technical communicators. When determining future actions, perhaps we should consider what the results of a follow-up study in another 30 years would offer about the content alignment in technical communication.

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# Patterns of Dissemination: Examining and Documenting Practitioner Knowledge Sharing Practices on Blogs

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## Abstract

**Purpose:** To empirically examine and document knowledge sharing patterns that practitioners employ in blog conversations about research and work experiences.

**Method:** We conducted an empirical analysis of 235 blog posts from June 2014 to March 2016. We analyzed and coded each post for 14 unique variables including *article type*, *topic*, and *citation style*. We then analyzed the data using both descriptive and inferential statistics in order to reveal patterns in the data.

**Results:** An overwhelming majority of the blog posts were written by practitioners for practitioners. Of the 235 blog posts, the most common topics were technology, professionalization, and communication strategies. Of the technology posts written, DITA was by far the most common technology topic. The most common article types were argumentative, process, and how-to articles. While practitioners rarely blog about research, when they do, they spend most of their time writing about results and discussion as opposed to introductions or methodology. Finally, our analysis revealed that bloggers made intentional visual design choices when sharing knowledge via blogs.

**Conclusion:** Practitioners use distinct knowledge dissemination patterns in blog conversations that shape how research is presented to the technical communication community. Understanding these patterns is an important first step toward developing a shared language that will help bridge the gap in understanding between the academic and practitioner communities. Ultimately, blogs are a useful forum for studying practitioner conversations and developing broader understanding about what they value in their work and research.

**Keywords:** research, blogs, academy-industry relationships, shared language, quantitative analysis

## Practitioner's Takeaway:

- Extends previous studies of practitioners communicating on blogs.
- Provides practitioners descriptive accounts about how they share knowledge on blogs.
- Offers up-to-date understanding of topics that practitioners discuss on blogs.
- Provides valuable data for helping practitioners and academics develop a broader shared understanding about their work as a basis for facilitating communication between their communities.



## Introduction

In technical communication, there is a documented disconnect between practitioners and academics (Boettger, Friess, & Carliner, 2015; Bridgeford & St.Amant, 2015; Rainey, 2005; Thrush & Hooper, 2006). This disconnect has led to poor communication between the communities including the delivery of research findings that this special issue is designed to address (Albers, 2015). Boettger, Friess, and Carliner (2014) describe the disconnect between academics and practitioners when they argue that the differences they found in practitioner and academic publications point to “differences in conversations of professionals and academics” (Boettger, Friess, & Carliner, 2014, p. 4). Their use of the word “conversation” is apt in that it implies a back and forth dialogue. Even more telling, however, is their argument that practitioners and academics seem to be having two distinct conversations, which points back to the divide that exists and the purpose for this special issue. In an ideal world, then, academics and practitioners would be having the same conversation—with both parties contributing and pushing forward the field together.

We argue that one way to begin the hard work of bridging the gap between these conversations is to draw from the concept of *shared language* described in interdisciplinary team research scholarship. Previous literature defines shared language as common vocabulary, jargon, codes, and linguistic styles (Austin, Park, & Goble, 2008; Chiu, Hsu, & Wang, 2006; Hannah & Saidy, 2014; Mamykina, Candy, & Edmonds, 2002; Milligan et al., 1999). However, the concept goes beyond language itself and addresses factors like the “subtleties and underlying assumptions that are the staples of day-to-day interaction” (Lesser & Storck, 2001, p. 836). This scholarship asserts that interdisciplinary teams made up of diverse individuals work more effectively when they develop a shared language. The first step in that process, however, is for individuals to develop a deep understanding of their counterparts by learning the “language” and conversational style of their counterparts.

Therefore, we believe that a necessary step for bridging the divide between academics and practitioners is examining practitioners’ current conversation. In order to study the conversation occurring among practitioners, we decided to examine blog posts of practicing technical communicators. We examine blogs because of their

ubiquity and popularity as a knowledge-sharing forum (Cleary, 2012; Yang, 2009). In fact, research has argued that one of the primary motivations of blog authors is knowledge sharing (Chai, Das, & Rao, 2011) and community identification (Hsu & Lin, 2008). In addition, since blogs democratize the publication process (i.e., anyone can publish a blog with little barrier to entry), blogs provide an “unfiltered” look at the issues practitioners talk about in their research conversation as well how they talk about those issues. Within the technical communication community, blogs have been identified as a forum for holding conversations about issues surrounding professionalization in the field as well as to think strategically about the future by sharing information, networking, discussing events, explaining procedures, and engaging in conversations with their readers (Cleary, 2012). Beyond the field of technical communication, other professional communities of practice such as medicine (Hillan, 2003; Lagu, et al., 2008; Maag, 2005; Watson, 2012), sociolinguistics (Hinrichs & White-Sustaíta, 2011; Mynard, 2008), and education (Brescia & Miller, 2006; Makri & Kynigos, 2007; Yang & Chang, 2012) have examined conversations on blogs to understand how communities of practice develop the kinds of shared understanding that is necessary for communicating well with members within a diverse community of practice.

Based on this broad professional interest in and use of blogs, we studied how practitioners present and share knowledge on blogs because it provides an opportunity for academics to study practitioner conversation as a necessary first step toward developing a shared language that will create conditions for fostering communication with practitioner communities.

Toward that end, we begin the article with an overview of the relevant technical communication literature regarding the ways academics have attempted to bridge the gap of understanding with practitioners by reviewing previous research that has sought to learn about work practices, job skills, and literacies. Next, we offer a detailed outline of research questions that drive our study and then describe and justify our method for a study of 235 practitioner blogs and present the results of our research questions. We then provide a discussion of key findings and note their implications for bridging conversations about research between the academic and practitioner communities. Finally, we note the limitations of this study and suggest directions for future research.



## Patterns of Dissemination

### How Academics Have Sought to Understand Practitioners

Academic research aimed at developing knowledge and understanding about practitioners' work practices and professional interests has primarily focused on the following:

- Studying practitioners using primary research including surveys (Blythe, Lauer, & Curran, 2014; Carliner et al., 2009; Rainey, Turner, & Dayton, 2005) and interviews (Cooke & Mings, 2005; Whiteside, 2003).
- Examining technical communication job postings (Brumberger & Lauer, 2015; Lanier, 2009).
- Analyzing formal publications (Boettger, Friess, & Carliner, 2014; Boettger, Friess, & Carliner, 2015).
- Analyzing the content of technical communication blogs (Cleary, 2012).

Each of these lines of scholarship offers academics a different kind of insight about practitioners and the ways they work and communicate.

### Understanding practitioners through surveys and interviews

Through surveys and interviews, academics have sought to learn about the realities of day-to-day industry practices. Practitioners have been studied as managers (Rainey, Turner, & Dayton, 2005; Whiteside, 2003), as graduates of technical communication programs (Blythe, Lauer, & Curran, 2014; Coon & Scanlon, 1997; Whiteside, 2003), and as industry specialists (Cooke & Mings, 2005). Though different in their approach, each of these studies shares in a general desire to bridge the gap between academic preparation and actual workplace practice by determining what skills, content knowledge, and writing and technology literacies are needed in the workplace (Henschel & Meloncon, 2014; Spilka, 2009). Overall, the knowledge shared by practitioners as primary research participants is valuable for its timeliness and responsiveness to contemporary work place demands; however, such information reflects only the perceptions of the small sample of individuals studied and therefore may not be adequately representative of the larger practitioner conversation in the field.

### Understanding practitioners through technical communication job postings

Technical communication job postings provide insight about bridging the gap between academics and practitioners because they provide a clear, written record of skills and experiences desired for technical communication jobs. For instance, Lanier (2009) examined 327 job postings on Monster.com and found communication skills as the most sought-after skill by employers. Similarly, Brumberger and Lauer (2015) examined nearly 1,000 job postings from Monster.com and found that the postings exhibited a wide variety in job titles as well as diversity in the kinds of technology skills, competencies, and information products required for the different job types. Ultimately, these studies provide valuable insights about skills and competencies that employers value in applicants; however, because job postings are framed through a human resources perspective, there are inherent limitations to understanding practitioners and their work lives via job postings. In particular, the human resources frame elides facts or elements from practitioner conversations that illustrate the day-to-day realities of practitioners' work.

### Understanding practitioners through formal publications

Another avenue for bridging the gap between academics and practitioners has focused on examining the trade publication, *Intercom*. Boettger, Friess, and Carliner (2014, 2015) investigated alignment between academic, peer-reviewed journals and industry trade-publications and found that differences exist between the two types of publications. Specifically, the authors note that industry trade publications publish process and professional-oriented articles that focus on professionalization, technology, and editing and style, whereas academic publications tend to publish product and education-oriented articles that focus on assessment, research design, and comprehension. Together, these studies offer useful insights about the types and range of topics that practitioners write about. Our research differs and extends this line of research in that our work examines blog conversations to understand how practitioners share knowledge, which is different than knowledge sharing in *Intercom* in that the editorial process for blogs is significantly less rigorous than *Intercom*. Therefore, our study provides a broader look at practitioner conversations in the technical communication community.

### Understanding practitioners via blogs

Unlike the prior three areas for developing practitioner understanding, blogs offer practitioners an unconstrained environment for conducting a conversation about their profession. As such, blogs represent a unique, up-close opportunity for academics to develop understanding of practitioners. Previously, Cleary (2012) studied ten practitioner blogs to examine how blogs reflect practitioner views of professionalization. Her findings revealed that practitioners were concerned with gaining respect for the field, understanding and standardizing routes to the field, and examining and understanding threats to the field. Cleary also identified a lack of engagement by academics on practitioner blogs, which is relevant to our study for her recognition of blogs as an opportunity for academics to engage in the practitioner conversation. As mentioned in the introduction of this article, other professional communities of practice like medicine (Hillan, 2003; Lagu, et al., 2008; Maag, 2005; Watson, 2012), sociolinguistics (Hinrichs & White-Sustaíta, 2011; Mynard, 2008), and education (Brescia & Miller, 2006; Makri & Kynigos, 2007; Yang & Chang, 2012) have used blogs to both develop and deepen shared understanding between its members. For example, in medical contexts, blogs provide a forum for physicians and nurses to share their narratives (Lagu et al., 2008), help create a sense of belonging and allow users to connect on their own terms (Hillan, 2003), and serve as a platform for nurses to learn from others (Watson, 2012). Of particular relevance to our study, medical blogs are being quoted or referenced in presentations, articles, and grant proposals (Watson, 2012). It seems, then, that academics in the field of medicine are using blogs to bridge a divide and enter into conversation with patients whom their work impacts. In a similar manner, this study seeks to examine how blogs might play a similar role in bridging the academic/practitioner divide.

Together, the above scholarship on blogs in professional communities of practice demonstrates the relevance of examining how blogs can help bring communities of practice together. Our study of technical communication practitioner blogs will add to this scholarship by looking at the dissemination patterns practitioners employ when sharing knowledge. We concede that some academic researchers may have little desire to engage in such a conversation

and that there are even contexts in which such a conversation is not appropriate. However, we believe that understanding and engaging audience, in this case, a practitioner audience, is vital to the role of a technical communicator.

### Research Questions

Based on the previous literature, we devised three sets of research questions. The first set of questions seeks to describe practitioner blog posts in an effort to better understand how practitioners disseminate knowledge. Second, we were interested in examining a sub-set of blog posts that centered on research-based blog posts in an effort to understand how and when practitioners conduct, reference, or apply research. Finally, the third set of research questions examines which types of blog posts generated the most engagement in an effort to determine what topics and types of articles practitioners are most drawn to. Below, we outline the specific research questions.

#### Describing practitioner blog posts

1. Who writes technical communication blogs and who are the blogs written for?
2. When practitioners disseminate knowledge via blogs, what topics do they publish about? What types of articles do they publish? Are they primarily publishing about the past, present, or future?
3. How do practitioners design their blog posts? Are there shared visual design markers used by practitioners?

#### Analyzing research-based blog posts

4. How often do practitioners write about or report on their own research?
5. When bloggers cite other work, do they primarily cite academic research or other practitioner work?
6. How do practitioners package and organize the delivery of research findings? Specifically, what percentages of their posts are dedicated to introduction, methods, results, and/or discussion?

#### Examining engagement in practitioner blog posts

7. What topics generated the most engagement? (as measured by comments, retweets, and likes)
8. What article types generated the most engagement?

## Patterns of Dissemination

### Methodology

In the methods section, we describe our data collection, coding, and analysis in detail.

#### Samples and data collection

We analyzed a total of 235 blog posts written between June, 2014 and March, 2016. To obtain our sample, we started with Twitter to archive tweets marked with the hashtag #techcomm using Martin Hawksey's Twitter Archiving Google Sheet (TAGS). This method of data collection was described in our previous article (Lam & Hannah, 2016a). Using TAGS, we collected 31,063 unique tweets. From those tweets, we filtered only tweets that included the word *blog* or *post* in them—1,517 tweets. We chose to filter tweets using the words *blog* and *post* because we assumed these words would likely appear in a tweet that was announcing a blog post on Twitter. Finally, from those 1,517 tweets, we removed duplicate tweets and ended up with a final number of 235 tweets that linked to unique blog posts.

We realize that this may not be exhaustive of every possible blog post written between the time period of June, 2014 and March, 2016; however, we made this methodological choice for two major reasons. First, following the hashtag #techcomm provided us with a contemporary and relevant collection of tweets about the field of technical communication because of the nature of the existing technical communication community on Twitter (see Lam, Hannah, & Friess, 2016). That is, an active community of technical communicators uses this hashtag for a variety of content related to the field. Second, the methodological alternative to using Twitter for locating blog posts involved a much less rigorous selection process (e.g., using a search engine and randomly selecting blog posts to analyze or analyzing posts from well-known bloggers). Our method allowed for an analysis of a wide variety of blog post authors and, thus, a wider vision of the field.

#### Variables

We collaboratively created a codebook that defined fourteen unique variables of interest based on our research questions. We came up with a set of mutually exclusive categories for the variables that can be found in Appendix, Table A. For one of the fourteen variables, *topic*, we adopted Boettger, Friess, and Carliner's

(2014) coding scheme that they used to code technical communication journal articles.

#### Coding procedure and interrater reliability

The first step in the coding procedure involved copying the URL that was captured in the original tweet and pasting it into a Web browser in order to view the blog post in its entirety. We then coded each blog post for the fourteen variables, recording the data in a Microsoft Excel spreadsheet. To record the number of retweets and favorites that the original tweet received, we copied and pasted the text of the original tweet into the search box of the Twitter website, which returned the original tweet. From the original tweet, we recorded the number of retweets and favorites.

While most of the variables did not require coder judgment (i.e., most variables involved simply recording quantitative variables), three variables required subjective coder judgment: *topic*, *article type*, and *temporal dimension*. To ensure interrater reliability, the authors independently coded the same 51 (22%) blog posts within the sample. Boettger & Palmer (2010) suggest collectively coding 10% of the sample to establish interrater reliability. Therefore, we were conservative in our choice to collectively code 22%. We achieved high interrater reliability for all three variables: *topic* (Cohen's Kappa = 0.76), *article type* (Cohen's Kappa = 0.78), and *temporal dimension* (Cohen's Kappa = 0.81). While there is no universal threshold when interpreting Cohen's Kappa, most research suggests that any value over 0.7 is acceptable, and some research even suggests that any value over 0.6 is acceptable (Landis & Koch, 1977). Once we established interrater reliability, each researcher coded half of the remaining 184 tweets.

#### Data analysis

We used a variety of statistical tests to analyze our data including descriptive statistics (ratios, frequencies, and means). To analyze more complex relationships between categorical variables, we used correspondence analysis (CA)—a method that is relatively new to technical communication but utilized in several recent studies (Boettger & Lam, 2013; Lam & Hannah, 2016b). Simple CA is a geometric technique used to analyze two-way tables containing some measure of correspondence between the rows and columns. The central analytical tool in CA is its visualization of row points and column points onto a multi-dimensional graphical map called

a biplot. Rows with comparable patterns, also known as profiles, appear in close proximity on the biplot. Similarly, columns with comparable profiles appear in close proximity on the biplot. When plotted together, the visualization allows a researcher to examine associations among row and column points (see Lam, 2016 for a full tutorial on how to implement CA into technical communication research).

Finally, to answer our final set of research questions, which involved both categorical and interval-level variables, we utilized the Kruskal-Wallis test as an omnibus test of topics and article types on engagement. The Kruskal-Wallis is a non-parametric alternative to the ANOVA. We chose to use the Kruskal-Wallis non-parametric test instead of the parametric ANOVA test because our data violated one major assumption of ANOVA: normality. Choosing the parametric test instead of the non-parametric counterpart increases the chances of a false positive, or type 1 error. When we found significance in the Kruskal-Wallis test, we conducted follow-up pairwise comparisons using the Dunn-Bonferroni method. This method uses Dunn's test along with a Bonferroni adjustment to the significance value of pairwise comparisons in order to reduce type 1 error. Dunn's test was used because it is an appropriate non-parametric post-hoc procedure that is used after a significant Kruskal-Wallis test (Dunn, 1964).

Before describing the results, we must also point out that when we describe relationships between variables, we are referring to a relationship among the derived coded variables from our coding scheme. That is, although our coding protocol produced adequate reliability, the codes themselves represent relationships among coded variables and may not represent relationships between actual empirical observations. This is an inherent limitation of the content strategy method that we want to explicitly acknowledge.

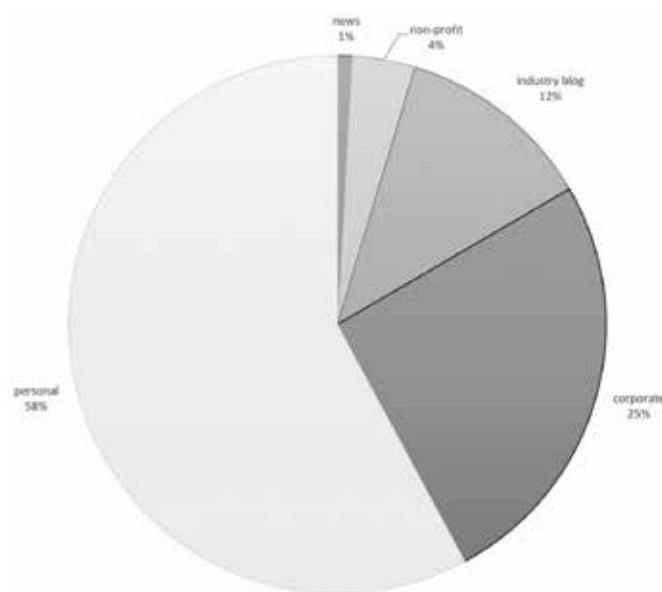
## Results

In the results section, we will answer each set of research questions separately. We also provide some exploratory results that complement the research questions.

### Describing practitioner blog posts

In our sample of blog posts written between June, 2014 and March, 2016, 98.29% of blog posts were written by practitioners and for practitioners ( $n = 231$ ). The

remaining blog posts were written by academics ( $n = 4$ ). There were a total of 91 unique authors throughout the sample. Additionally, we examined the types of websites that the blog posts were published in. Figure 1 shows the breakdown of the website types. As can be seen, the majority of the blog posts were written by individuals who write for their own personal blogs ( $n = 136$ ). However, one-fourth of the blog posts were posted on a corporation-affiliated website ( $n = 60$ ).



**Figure 1. Types of websites where blogs were published**

In addition to the authors, audiences, and venues for this sample of blog posts, we also coded the blog posts for *topic*, *article type*, and *temporal dimension*. Figure 2 shows the frequency for each topic in the sample. As can be seen, blog posts related to technology ( $n = 83$ ) dominated the sample. Blog posts on professionalization ( $n = 51$ ) and communication strategies ( $n = 27$ ) were also prevalent. Other topics seemed to only appear sporadically throughout the sample. As can be seen in Figure 3, the three most prevalent types of articles were process articles ( $n = 60$ ), argument ( $n = 54$ ), and how-to ( $n = 52$ ). As a reminder, Appendix, Table A provides descriptions for all of the variables and coding categories. Finally, we coded each article to determine the temporal nature of the articles to understand whether blogs were backward looking, present looking, or forward looking. We found that a majority of articles were about the present ( $n = 203$ ) with a small number of articles focused on the past ( $n = 18$ ) and future ( $n = 14$ ).

## Patterns of Dissemination

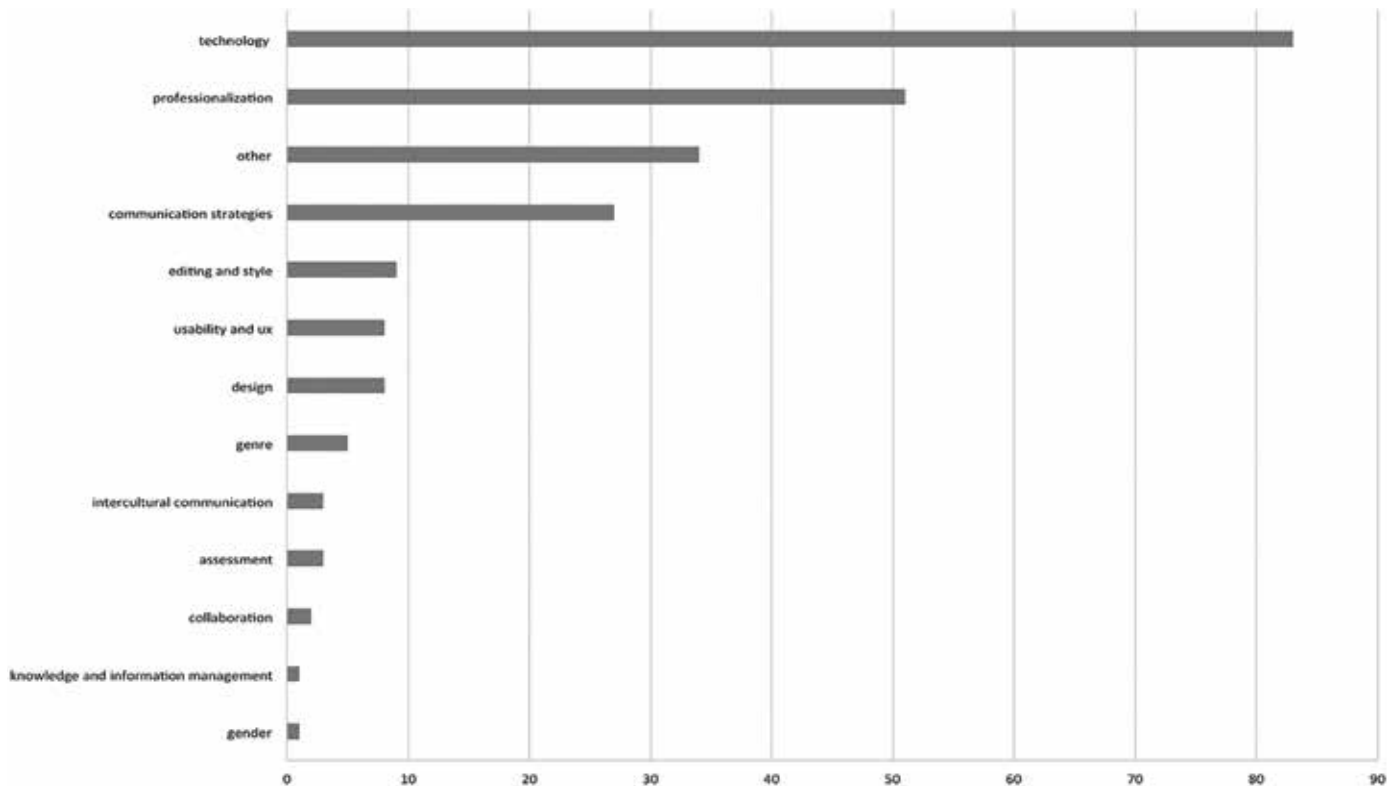


Figure 2. Frequency of topics

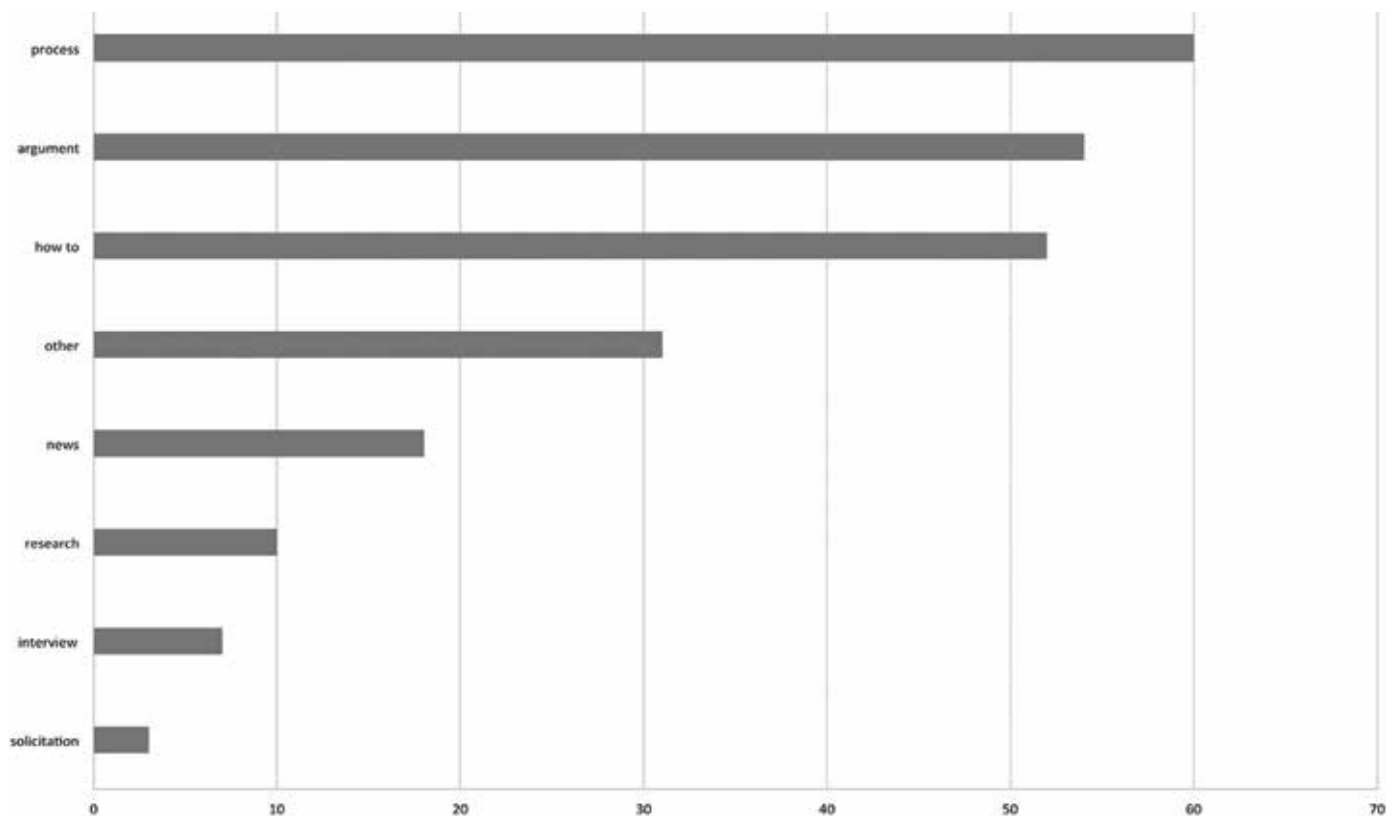


Figure 3. Frequency of article types



To further explore the first set of research questions, we conducted a CA to determine if any specific *topics* were associated with particular *article types*. Based on the CA, the two coded variables were significantly associated ( $X^2 = 180.269$ ,  $p < 0.01$ ). Follow-up analyses revealed three significant relationships. First, *communication strategies* was closely associated with *how-to* articles: 40.7% of all *communication strategies* articles were also *how-to* articles. Second, *professionalization* articles were closely associated with *argument* articles: 52.9% of all *professionalization* articles were also *argument* articles. Finally, both articles that were categorized as *other*

in both the *topic* and the *article type* category closely corresponded. Figure 4 shows this CA visualization.

To examine the visual design choices within this sample of blog posts, we counted the number of images, charts and tables, lists, and headings that were present in each blog post. We also recorded word count for each post. Table 1 shows the mean and standard deviation of each of these variables. Also of interest is the wide range of word counts for this sample—the shortest blog post being 60 words and longest being 4,534. This suggests quite a bit of variance in length expectation for this particular genre.

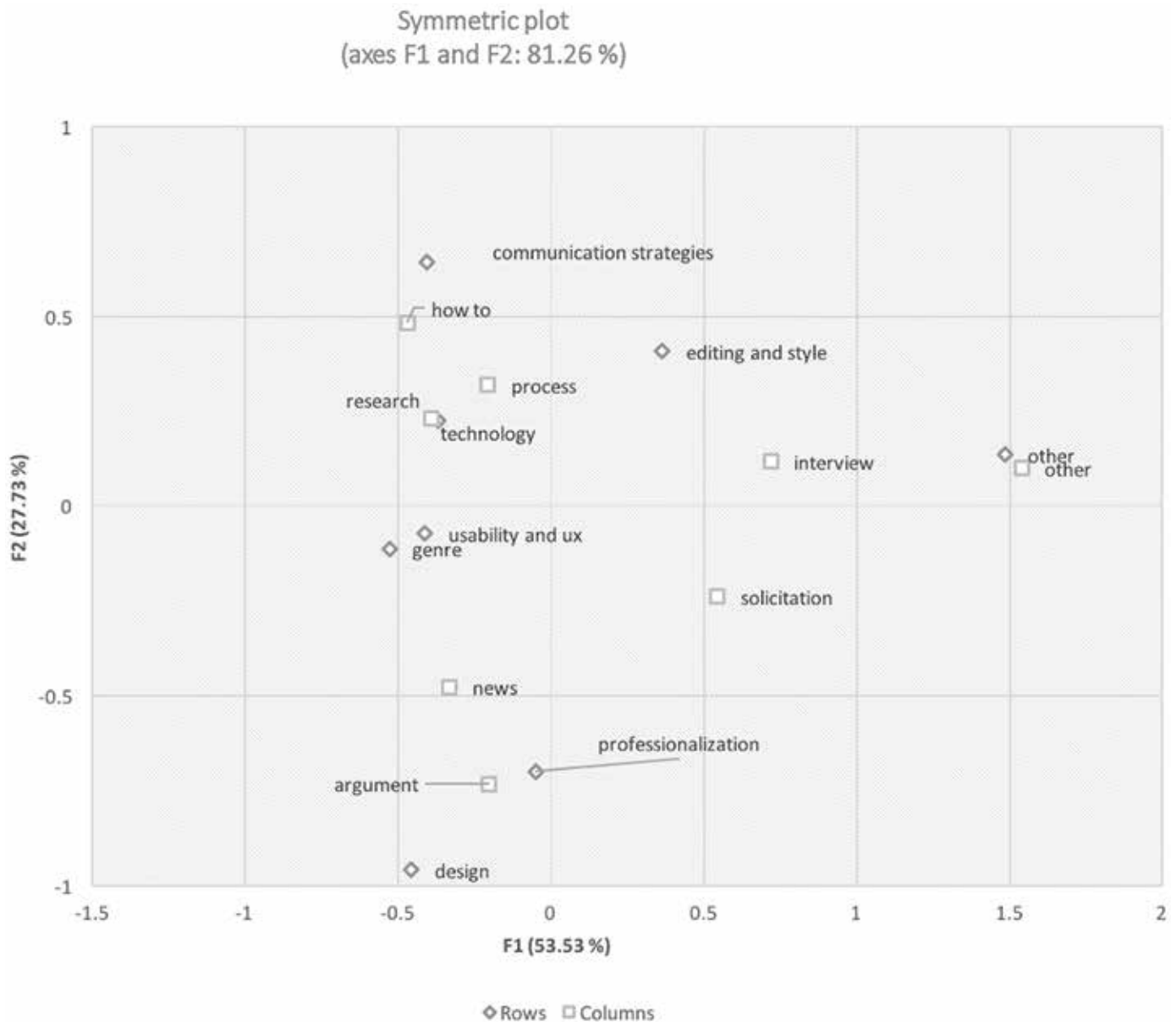


Figure 4. CA biplot for topic and article type

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However, examining this data in context provides a more interesting view of the data. Table 2 shows correlations among the visual design variables and reveals a significant and positive correlation between word count and all of the other design elements (headings, images, charts, and lists). A closer look at the data shows a particularly strong correlation between headings and word count and between lists and word count. This seems to suggest that authors of these blog posts are perhaps strategically using visual elements to break up longer chunks of text. We will discuss this in more detail in the discussion section that follows.

**Table 1. Descriptive statistics for visual design variables**

	Mean	Standard Deviation	Minimum	Maximum
<b>Images</b>	1.647	2.081	0	11
<b>Charts</b>	0.221	1.079	0	11
<b>Lists</b>	1.068	1.652	0	9
<b>Headings</b>	3.060	3.738	0	22
<b>Word Count</b>	851.20	692.759	60	4534

**Table 2. Correlation table of visual design variables**

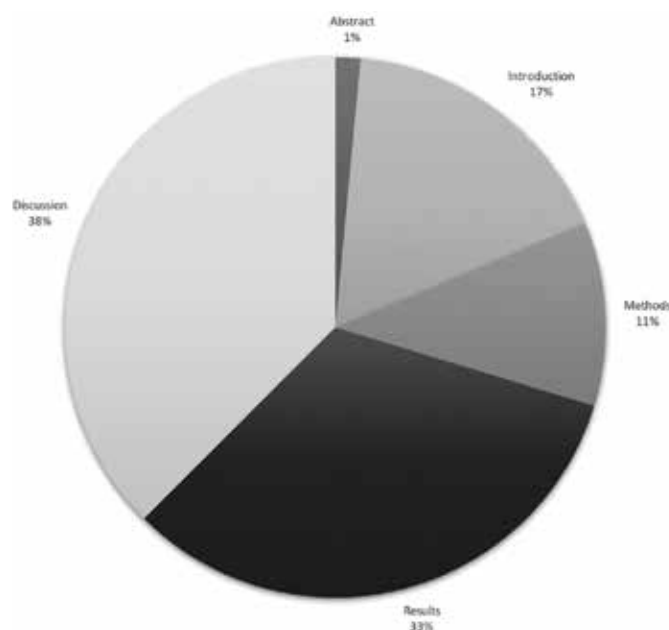
	Images	Charts	Lists	Headings	Word Count
<b>Images</b>	1	-0.068	0.095	0.425	0.317
<b>Charts</b>	-0.068	1	0.147	0.275	0.190
<b>Lists</b>	0.095	0.147	1	0.408	0.417
<b>Headings</b>	0.425	0.275	0.408	1	0.645
<b>Word Count</b>	0.317	0.190	0.417	0.645	1

\*Values in bold are different from 0 with a significance level  $\alpha=0.05$

### Analyzing research-based blog posts

Our second set of research questions focused on examining how research was presented in our sample of 235 blog posts. First, we wanted to know how often technical communication bloggers actually wrote research blog posts. As a brief reminder, a research blog post was coded as such if the primary content in the blog reported original research or summarized previously conducted research. Based on our analysis, we discovered that the number of research blog posts was quite

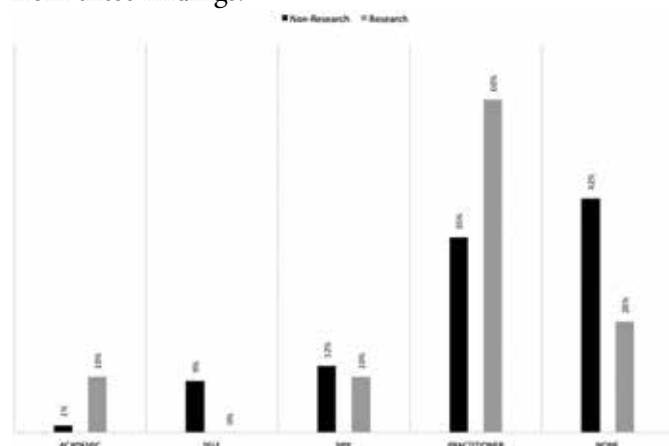
low—4.25% of all blog posts. We conducted additional coding on these *research* posts to examine the strategies that authors used while disseminating research findings. First, we identified various sections within a blog post following the well-utilized IMRaD structure. Next, we recorded the number of words that authors used in each of these sections in order to derive a percentage dedicated to each section of the IMRaD structure. Figure 5 provides the average percentage dedicated to each section of the IMRaD structure. As can be seen, on average, the majority of an article was dedicated to the discussion (38%) and results (33%) sections. A much smaller percentage of words was dedicated to the introduction (17%) and even less to the methods (11%). Most of the research blog posts did not include an abstract, which explains the small fraction dedicated to the abstract.



**Figure 5. Average percentage breakdown for IMRaD structure**

We were also interested in examining the citation practices of technical communication blog authors. As a point of comparison, we analyzed our *citation type* code for both non-research and research-based blog posts. Figure 6 below shows the relative distribution of *citation types* comparing non-research and research-based articles. One interesting difference in distributions to note is between academic citations and self-citations. That is, non-research articles tended to rely more heavily on self-citations than did research based articles. On the other

hand, research-based blog posts tended to rely more heavily on academic citations than did non-research based blog posts. While these findings are not necessarily surprising, they do indicate some overlap between practitioners and academics in the expectation of the research genre. We will fully discuss the implications of these findings later in the article. In regards to quantity of citation, both non-research ( $M = 1.594$ ,  $SD = 2.294$ ) and research-based articles ( $M = 1.90$ ,  $SD = 1.792$ ) had a relatively small number of citations. It is important to note, however, that the sample of research posts was small, so we are careful when we draw out implications from these findings.



**Figure 6. Relative citation types for research and non-research articles**

Finally, we were also interested in how research-based posts might differ from other article types in regards to visual design. To examine these differences, we conducted the Mann Whitney U test to determine whether research articles had more charts than other types of blog posts. We examined charts because we assumed research articles would use charts to display data. We discovered that research articles had significantly more charts than other article types ( $Mann\ Whitney\ U = 2925$ ,  $p < 0.001$ ). Again, however, we note that the sample size for research posts is relatively small. Therefore, the differences we report here must be hedged and are reported as exploratory results (as opposed to testing a previously held hypothesis).

### Examining engagement in practitioner blog posts

Our final set of research questions examined the relative engagement of *topics* and *article types*. To examine how a *topic* influenced engagement, we conducted

the Kruskal-Wallis test on *topic* and three quantitative measures: *comments*, *retweets*, and *favorites*. As a brief reminder, *comments* were recorded on the blog post itself while *retweets* and *favorites* were recorded on the original tweet that shared or announced the blog post. According to the Kruskal-Wallis test, *topic* significantly influenced *comments* ( $X^2(11, n = 235) = 19.80$ ,  $p = 0.048$ ). However, follow-up pairwise tests using the Dunn-Bonferroni method revealed no significant differences between pairs of topics. The Kruskal-Wallis test also revealed that *topic* did not significantly influence *retweets* ( $p = 0.063$ ). Finally, *topic* significantly influenced the number of *likes* that a post received ( $X^2(11, n = 235) = 25.59$ ,  $p = 0.007$ ). Since there was significance in the high-level Kruskal-Wallis test, we examined pairwise comparisons using the Dunn-Bonferroni post hoc method, which revealed that *communication strategies* received significantly more likes than articles on *editing and style* ( $adjusted\ p = 0.043$ ).

We also examined how *article type* influenced engagement. Based on the results of a Kruskal-Wallis test, *article types* significantly influenced comments ( $X^2(7, n = 235) = 23.78$ ,  $p = 0.001$ ). Follow-up pairwise comparisons using the Dunn-Bonferroni method revealed that *argument* articles generated the most discussion and produced significantly more comments than *news* articles ( $adjusted\ p = 0.001$ ). *How-to* articles also produced significantly more comments than did *new* articles ( $adjusted\ p = 0.004$ ). *Article type*, however, did not significantly influence the number of retweets ( $p = .34$ ) or likes ( $p = .07$ ).

## Discussion

In the discussion section, we draw out the implications of the results in four major sections. We also specifically discuss how academics might use these results to begin thinking about how to build a *shared language* for creating conditions that facilitate communication with practitioners.

### Academics can connect with practitioners by considering relevant topics

The first step to effectively start a dialogic conversation with practitioners is understanding what they care about, which is revealed through the topics they write about. The top three topics that practitioners wrote about in our sample were *technology*, *professionalization*,

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and *communication strategies*. Additionally, *communication strategies* articles were the most engaging as they received significantly more *likes* than articles on *editing and style*. This finding echoes Boettger, Friess, and Carliner's (2014) previous study where they examined the topics and audiences of articles published in *Intercom*. We explored this result further to learn more specifically what practitioners were blogging about within the technology blog posts. Interestingly, we found that the word *DITA* was the most frequently used word ( $n = 27$ ) in the tweets of articles coded as *technology*, which represented about one-third of all posts on technology. This is particularly interesting because it signifies that practitioners seem to be discussing specific technologies relevant to their practice (e.g., DITA) and not about general software tools (e.g., word processing software). This insight is important to academics as evidenced in a recent blog post about DITA by Tom Johnson, a popular blogger who was responsible for 30 posts in our sample. Tom was discussing an academic article about lightweight DITA published in *Technical Communication* by Evia and Priestley (2016). Tom expresses his surprise about the relevance and usefulness of the academic article when he writes, "Holy smokes, I never thought I would see Github Pages, Jekyll, and YAML along with my favorite bloggers mentioned in a scholarly tech comm article" (Johnson, 2016). Tom's sentiment speaks to a divide between practitioners and academics, specifically that "scholarly tech comm" articles almost never examine high-tech ("Github Pages, Jekyll, and YAML") topics that are relevant to many practitioners. Boettger, Friess, and Carliner's (2014) study confirms this divide as academics seem to write about topics like rhetoric much more often than topics like technology. More telling in this example, though, is Tom's reference to Evia and Priestley's citing of other practitioners. These "favorite bloggers" are part of Tom's professional community, and the credibility of Evia and Priestley's research discussion is heightened because it represented these perspectives along with the authors' academic colleagues. As such, the discussion of Github Pages, Jekyll, and YAML was bridged between academics and practitioners and thus more comprehensively captured the field's expertise about these technology topics. In summary, Evia and Priestley (2016) do well to speak the language of practitioners and create conditions for facilitating communication with them by 1) writing about topics relevant to practitioners (XML and

HDITA) in a practical and direct manner, and 2) citing and studying other practitioners and not just other academics. While this requires self-learning for many, the potential upside of starting a dialogic conversation between academics and practitioners is likely worth it. We do want to point out we are not suggesting that all academic writing must be catered to and/or involve practitioners within the conversation. However, for those in the academic community in technical communication who seek to maintain or bolster relevance, these findings can be helpful in entering into the conversation with practitioners.

### Academics can connect with practitioners by considering relevant article types

Another interesting finding was that *argumentative* articles seemed to generate the liveliest discussion on a blog post, and a CA revealed that *argument* posts were most often about the *professionalization* of the field. For example, a post coded as *argument* and *professionalization* entitled "The Death of Technical Writing" written by Neal Kaplan (2014) generated by far the most discussion in the entire sample (65 comments on the blog post). Interestingly, the crux of Kaplan's argument about the changing nature of the field is built around the need to adapt, primarily in being able to create content that is reusable. He even argues that the field has spent too much time focusing on DITA, which he calls "arcane" and "overly complex" (para. 13). Of the 65 comments, many applaud Kaplan's view of DITA while others come to defend it. Regardless of the outcome of the discussion, practitioners continue to care deeply about the future of the field (Cleary, 2012), a discussion that academics have also been engaging in for decades. To participate in the conversation, academics should consider adding to the discussion by making arguments about the future of the field since practitioners are also interested in this topic.

Additionally, *how-to* articles were prevalent in the sample, signaling that practitioner audiences value practical information. Our CA revealed a significant relationship between *how-to* articles and *communication strategies*, which is particularly interesting because the phrase "how-to" typically connotes rote, task-driven articles about a tool or technology. Our sample, however, revealed that many of our blog authors were writing how-to articles about strategic communication and not about technology. For instance, one article in

our sample walks readers through a step-by-step process for implementing a social media strategy into a small business. This finding should encourage academics because it shows that practitioners are not simply interested in articles that help them accomplish simple tasks. Rather, practitioners seem more interested in strategic, yet practical content that they can implement into their work contexts. As such, academics should consider incorporating *how-to* type articles for practitioner audiences when appropriate. For instance, *IEEE Transactions on Professional Communication* publishes peer-reviewed tutorial articles that are focused on issues related to high-level, strategic communication. Killoran (2013), for instance, published a tutorial article about search engine optimization, which was clearly directed at practitioner audiences. Similarly, Baehr (2012) published a tutorial on how to apply theoretical models, such as media richness, to e-learning modules. These articles are unique in that they retain academic rigor while still being relevant to practitioner audiences. Besides writing full-blown tutorial articles, academics can also consider incorporating aspects of *how-to* articles into their existing academic research agendas by explicitly describing how their work contributes to both theory and practice, much like is done in the practitioner takeaway section in articles published in the journal *Technical Communication*.

### **Academics can connect with practitioners by modeling their research reporting and citation style**

When research was reported, practitioners seemed to emphasize results and discussion over detailed descriptions of what motivated their research (e.g. the introduction and their methods). As such, practitioners are directing little attention to fleshing out the research space or justifying the method they followed to generate findings. Generally speaking, academics need to flesh out research space to defend against criticism and establish the exigency of a study. It seems, though, that practitioners are not constrained in the way academics are in regards to reporting research. Therefore, an immediate implication of practitioners' research dissemination is the need for academics to be aware of the publishing environment in which practitioners share knowledge. To join the conversation with practitioners, academics could allow themselves to model this dissemination pattern in their own reporting of research. We are not suggesting that academics should stop

reporting their methods or writing literature reviews, but we are suggesting that academics consider foregrounding findings and practical implications whenever possible. Specifically, academics could write and share brief summaries of results from larger research projects that are accessible and practical for practitioners disseminated on personal blogs, university websites, and other non-traditional venues that are accessible to practitioners and do not require access to an academic journal database.

Another interesting characteristic of practitioner research blog posts was their citation patterns. For non-research blog posts, practitioners most often cited other practitioners and themselves. In research-based blog posts, they most often cited other practitioners and academics but never cited themselves. These patterns of citation make us consider two interesting points. First, practitioners seem to know the work of their colleagues and value creating a network of knowledge sharing in their blogosphere. In that sense, their citation is not very different than academics at all. Second, practitioners seemed to change their citation patterns when reporting research—most notably in the lack of self-citation. Perhaps practitioners are establishing credibility by linking to and citing external sources in their desire to make the research they discuss more credible. The shift in citation style is telling in how it signals practitioners' efforts to align their citation practices to academics' citation practices in research articles. To reciprocate this effort, academics might consider, when appropriate, adapting their citation practices to align with practitioners' citation practices in both research and non-research articles. For instance, academics who write about technology, professionalization, or communication strategies could consider citing practitioners to begin a dialogic conversation. That is, practitioners are on the ground experiencing angst related to professionalization, implementing new communication strategies, and using new technology, and therefore have much to say regarding these topics. Furthermore, citing practitioners in academic work can and should be mutually beneficial. First, it gives a voice to and validates practitioners, which of course benefits practitioners. Second, it can make academic work more visible in the practitioner community, which benefits academics by providing opportunities to apply and test academic theories and ideas in a real-world context. This symbiotic citation style is a way to establish an ongoing conversation among practitioners and academics.



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### Academics can connect with practitioners by blogging

Finally, we want to end the article by picking up on Davis' (2013) call and encourage academics to engage and collaborate with practitioners by participating in the practitioner blogosphere. While we realize there are many good reasons not to blog (time constraints, tenure considerations, not wanting to give away results before they are published), academics must consider that one reason for the academic/practitioner divide could be that we are simply not having the conversation in the right way, in the right place, at the right time. Engaging with practitioners in the genre they are most familiar with is a significant and obvious way to encourage conversations among academics and practitioners. Our study revealed several strategies that academics might consider when blogging. For example, since practitioners tended to use more visuals (graphs, charts, and tables) as word count increased, academics should consider strategically using visual elements to accommodate blog readers' expectations. Additionally, our study found that the average length of blog posts was about 850 words. So, to accommodate practitioners' expectations, academics should be concise and report the most actionable and practical information. In both of these examples, we are encouraging academics to employ shared language or the dissemination patterns that are used and valued by practitioners. One author of this study has, perhaps unsuccessfully, begun blogging and sharing research results. While the conversation has not initiated any paradigm shifts in the field, it is a start that we hope continues.

### Limitations and Directions for Future Research

There were two primary limitations of the study. First, the sample size of research posts was small and therefore restricted the statistical analysis we conducted. While we had no control over the number of research posts within the sample, a future study could search more explicitly for research-based practitioner blog posts. Additionally, a follow-up study could dive deeper into research blog posts using a qualitative method like discourse or genre analysis. A second limitation of the study was the way in which we coded for engagement. We counted the number of comments each post received, which provides a quantitative engagement metric. However,

a future study could examine these comment threads qualitatively to get a sense of the types of conversations that certain blog posts generate.

Ultimately, we hope this study sheds light on practitioner knowledge sharing practices and provides practical pathways for academics to work toward developing shared language with practitioners, when appropriate, and thus be in a position to engage in more dialogic conversation with our industry counterparts. We also hope that this study will be helpful for academics to begin considering the relevancy of our research questions to practitioners and the subsequent communication of research results to practitioners. As a way to begin assessing the relevancy of our research questions to practitioners, academics can begin using blogs to guide the development of our research questions using language from practitioner conversations.

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### Appendix

**Table A. Variables, definitions, and categories for coding**

Variable	Definition	Categories
<i>Article Type</i>	Describes the primary purpose of the blog post.	<p><b>How to</b> – coded if blog post showed a reader to complete a task or provided educational information about a task or set of tasks.</p> <p><b>Argument or commentary</b> – coded if author presents a clear argument or commentary about the field</p> <p><b>Solicitation</b> – coded if the post explicitly attempts to get the reader to do something (e.g., complete a survey)</p> <p><b>Process</b> – coded if the post provides an overview of a technical process or an experience report about a process.</p> <p><b>Interview</b> – coded if the blog post centered around an interview either in whole or in part.</p> <p><b>Research</b> – coded if the post presented original research or recapped previously-conducted research.</p> <p><b>News</b> – coded if the post provided an update or announcement about something field-related.</p> <p><b>Other</b> – coded if blog post did not fit any previous category.</p>
<i>Topic</i>	Describes the topic of the primary content within the blog post.	<p><b>Assessment</b> - Focuses on the assessment of business practices and projects or academic programs</p> <p><b>Collaboration</b> - Emphasizes the issues impacting face-to-face or virtual collaboration</p> <p><b>Communication strategies</b> - Discusses or explores a particular practice that impact communication.</p> <p><b>Comprehension</b> - Discusses the ways that users identify, retain, and recall information</p> <p><b>Design</b> - Discusses how design practices influence communication decisions</p> <p><b>Editing &amp; Style</b> - Discusses how editing or style issues influence communication</p> <p><b>Gender</b> - Explores how sex differences impact communication</p> <p><b>Genre</b> - Emphasizes the design or use of genre</p> <p><b>Professionalization</b> - Includes discussion of professionalization issues in technical communication as well as narratives that describe the history or current state of technical communication programs and practices.</p> <p><b>Intercultural communication</b> - Examines the intercultural or international communication impacts on communication</p> <p><b>Technology</b> - Discusses an applied component of technology, such as XML, hypertext, software, or hardware tools.</p> <p><b>Usability and UX</b> - Discusses how users engage with artifacts and the degree to which they can use or enjoy using those artifacts. This includes the evaluation of these artifacts.</p> <p><b>Other</b> - Includes any article that doesn't fit within any of the definitions.</p>



<i>Website Type</i>	Describes the type of website the blog was published in.	<b>Corporate</b> – coded when blog was posted on the website of a company that sells products or services. <b>Personal blog</b> – coded when blog was posted on personal website written and maintained primarily by one person. <b>Industry blog</b> – coded when blog was posted on website about technical communication and contributed to by multiple authors. <b>Non-profit</b> – coded when blog was posted on non-profit site like university website. <b>News</b> – coded when posted on news outlet site (e.g., Washington Post)
<i>Temporal dimension</i>	Describes whether the content of the blog post discusses the past, present, or future.	<b>Past</b> – coded when blog post looked at technical communication historically. <b>Present</b> – coded when blog post was relevant to present practice. <b>Future</b> – coded when blog post made predictions or looked to the future.
<i>Citation Type</i>	If a post uses citations, this describes what kind of citation the author uses.	<b>Self</b> – coded if all citations in the article were self-citations to other posts on the same website. <b>Practitioner</b> – coded if all citations in the article were to other outside websites aimed at practitioners. <b>Academic</b> – coded if all citations in the article were to academic publications. <b>Mixed</b> – coded when any mix of the previous three categories were cited.
<i>Citation Count</i>	If a post uses citations, this is a numerical frequency of citations throughout the post.	Quantitative variable
<i>Images</i>	A frequency of the number of total images. Traditional images and screenshots are included in this variable.	Quantitative variable
<i>Charts</i>	A frequency of the number of charts, graphs, and tables included in a post.	Quantitative variable
<i>Lists</i>	The number of lists present in a post.	Quantitative variable
<i>Headings</i>	The number of headings in a blog post.	Quantitative variable
<i>Word Count</i>	The number of words in a blog post.	Quantitative variable
<i>Comments</i>	The number of comments posted on the blog post—this includes replies to comments.	Quantitative variable
<i>Retweeets</i>	The number of retweets an original Tweet received.	Quantitative variable
<i>Favorites</i>	The number of favorites an original Tweet received.	Quantitative variable

# Reflections on Research: Examining Practitioner Perspectives on the State of Research in Technical Communication

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## Abstract

**Purpose:** While research is an important to both academics and practitioners alike, it seems the field is currently at an impasse about what constitutes research and what questions should be a priority for the field. We wanted to give practitioners a forum to provide their perspectives on what research is and what questions the field should be researching.

**Method:** We conducted 30 asynchronous interviews with practitioners, and then analyzed the interviews for common themes and topics.

**Results:** Interviewees (practitioners) noted an interest in research that examined how individuals (particularly specific audiences) use different technologies as well as an interest in collaborating with academics to explore research on different topics and from different perspectives.

**Conclusion:** The information reported here and the related questions it raises can enhance understanding of and facilitate collaboration across the field. This study helps industry practitioners of technical communication to better understand how other industry practitioners in the field view and think of research; it also helps academic researchers in technical communication to better understand perspectives, assumptions, and expectations industry practitioners have about research.

**Keywords:** research, practitioners, workplace research, research questions

## Practitioner's Takeaway:

- Provides an overview of current research questions that are of interest to practitioners.
- Provides academic researchers and industry practitioners with perspectives, assumptions, and expectations that practitioners have about research.
- Offers a range of possibilities for practitioners to engage academics in the research enterprise.

## Introduction

Today, technical communication appears to be a divided field, at least in terms of research. Practitioners think academic research does not apply to them, and academics think practitioners are not recognizing the importance of their research. From our position, both sides are right, and both sides are wrong; thus, the need arises to find a common ground between the two groups. After all, technical communication is one field.

Some scholars (St.Amant & Meloncon, 2016; Rude, 2015) have argued research, when conducted well, can bridge this divide as both sides should have equal stakes in the results. Academics need to do research to meet professional obligations at their institutions, and practitioners need research results to answer many of the questions they face in their daily work lives. However, even with an equal investment from academics and practitioners, a major stumbling block remains: There is little understanding between the two groups about a number of research-related aspects. Such differences include what research in the field should focus on, how it should be undertaken, and how and where results should be shared. By understanding these differences, groups within the field can better apply the work of and engage with other segments of the field.

Academics and practitioners might question why it is necessary to find such common ground. After all, specific job demands in both industry and academia often do not permit the flexibility to focus on anything other than immediate day-to-day concerns of the individual. The academic field of technical communication has, however, historically maintained a connection to workplace practice (e.g., Keene, 1997) or recognized the need for such connections (e.g., Bridgeford & St.Amant, 2015) as many programs in the field claim they are preparing students to enter this workplace (e.g., Gordon, 2009; Scott, 2006). Building stronger relationships can therefore provide insights that facilitate effective education and training across the field. And research—recognized as essential across the field—can serve as a mechanism through which the two sides can come together, share ideas, and collaborate. In this way, by uniting around the area of research, academics and practitioners have the opportunity to help one another professionally. This entry is a first step toward facilitating such a broader understanding about research across the greater field.

In considering this situation, we (the authors) realize cross-field interactions around research require individuals to understand research from both the academic and the practitioner perspectives. This entry represents the initial helps to foster understanding by examining industry practitioner perspectives on research as it relates to technical communication. Specifically, we review and discuss the results of 30 asynchronous interviews with industry practitioners<sup>1</sup> in technical communication. In presenting these results, we report on interviewees' perceptions and views of what research topics merit focus and what approaches should be used to conduct research. We also share interviewees' ideas for how research might be shared across the field and the value of collaborating around research.

The information reported here and the related questions it raises can enhance understanding of and facilitate collaboration across the field, for it helps:

- Industry practitioners of technical communication to better understand how other industry practitioners in the field view and think of research.
- Academic researchers in technical communication to better understand perspectives, assumptions, and expectations industry practitioners have about research.

As such, these results can offer insights into what each side needs and wants in regards to research. Such understanding can facilitate information exchanges and collaborations that can be of benefit to all involved.

## Background on the Research Divide

Research is central to the existence and the advancement of any field. It helps its members address problems, plan for future activities, and better recognize current contexts in which they interact. That is not to say all individuals need to agree on research findings or their implications (or applications) for the overall field to be successful. But for research to be effective within the greater context of a field, it must serve as a foundation for ideas members can discuss and debate. However,

<sup>1</sup> *Industry practitioners, or practitioners is the term we will use throughout to designate someone who is currently working outside of higher education in the broad field of technical communication and who identifies as this type of working professional.*

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academics and practitioners do need to be aware of what research other individuals are doing in order to:

- Know what existing research to draw on when planning different technical communication projects (particularly for practitioners).
- Plan research activities designed to test, expand, or build upon existing research in the field (for academic researchers).

Such an understanding might also serve as a foundation that industry practitioners and academic researchers can use to seek out areas of collaboration in relation to research (e.g., industry practitioners identifying a problem that requires further research and academics engaging in related research on that topic).

### Focusing on Research

As an academic field, technical communication has long focused on the methodological assumptions that drive the research process (e.g., Scott, Longo, & Wills, 2006; Herndl & Nahrwold, 2000; Andersen, 2014; Rickly, 2007; Meloncon, 2013; McKee & Porter, 2009). This concern is shared by academic researchers and industry practitioners alike, as evidenced by a recent podcast interview posted to the practitioner website “I’d Rather Be Writing” (2015) (see <http://idratherbewriting.com/2015/08/10/lisa-meloncon-academic-practitioner-divide-podcast/>).

Previous attempts to investigate academy-industry relations have revealed that research can play a central role in bringing the two sides together. For example, at the 2000 Milwaukee Symposium that brought together 17 academic and industry professionals to explore enhancing relations across the field, Blakeslee and Spilka (2004) explained, “one particular area where we need to define more and better [research] questions is relation to industry. We found universal agreement that the needs of industry should have at least some influence on the questions we articulate” (p. 78). Similarly, a survey of industry professionals (n=190) and academics (n=54) performed by Benavente et al. (2013) found

What is clear is that while the priorities for these two groups can differ quite dramatically, the two groups’ missions are intertwined. We have some

work to do to better understand the differences. But we are excited to note that we also have some clear shared priorities with which to begin engaging one another. (n.p.)

The topic of research has thus come under increasing scrutiny in the academic literature in recent years. Moreover, as a field, we have begun looking more closely at the research we have done and are doing (e.g., Carliner, Coppola, Grady, & Hayhoe 2011; Coppola & Elliot, 2005; Dayton & Bernhardt, 2004; Lam & Boettger, 2013; Lay, 2004; McNely, Spinuzzi, & Teston, 2015; Rude, 2015). Such reflections reveal the need for and the value of research. The point of contention, however, involves what should guide our research practices and agendas.

Addressing such items becomes a matter of commonality and coherence. That is, the key to moving forward on issues of research to unite the field involves identifying areas of common interest across it. By focusing on these issues, researchers in technical communication can create a foundation of mutual interest around which individuals can unite. The answer might thus involve agreeing on the questions that should be central to—and should guide research in—the field. Creating commonality via research questions is central to ideas noted by Carliner et al. (2011):

The researchers we surveyed went further than simply suggesting the need to replicate existing work. They all concurred that we need to agree upon specific, broad questions that we consider important for our field to explore, and we need to articulate these questions in a clearer and more focused manner . . . Many of the researchers surveyed sense that we are having difficulty as a field articulating research questions that are appropriate and useful. (p. 77)

Again, the central issue to address becomes what are these over-arching questions that can help unite the field around shared perspectives of research.

### Methodology

This project was reviewed by the University of Cincinnati Institutional Review Board, #2016-0888 and was determined to be “not human subjects research.”

### Collecting data on practitioner perspectives on research

Academics often have a general idea of the purposes of research. As noted, they have also consistently examined the process of research and have more recently examined the products of research. The practitioner voice, however, has historically been more limited in the existing academic research (Beneventa, 2013; Blakeslee & Spilka, 2004). For this reason, we wanted to examine the topic of research across the greater field by looking at the ideas, opinions, and perspectives of practitioners.

One of the challenges with this sort of project is getting a representative sample of practitioners. A researcher's first impulse might be to send a survey to gather data from the largest number of respondents possible. In essence, survey design is meant to deal with pre-determined categories established via prior research in a topic area. This project, in contrast, represents foundational or pre-survey-stage inquiry—a point at which the major research challenge is to determine what these categories should be. Within this context, the concept we wish to examine does not require a large number of respondents. Rather, it requires more in-depth responses to determine what future categories might be (for potential survey design). For this reason, we selected interviews as the method of data collection because the more open-ended questions central to interviews seemed to be a better approach for collecting in-depth data needed at this fundamental stage of the process.

We were, however, challenged by the existing synchronous/real-time format of the interview as a research method. Technical communicators in industry are often limited in the time they can dedicate to a single, focused activity—particularly one not directly related to their professional duties or responsibilities. We therefore realized it would be difficult to get the types and quality of responses (i.e., data) needed through a traditional interview method. Trying to do so with a relatively large pool of individuals (i.e., 15 or more industry professionals) would be even more complex and difficult.

Additionally, attempts to use the conventional synchronous interview method were met with resistance. In fact, one potential participant went as far as to say s/he might have time to address some of our interview questions, but it would be at least a month before s/he would have time in their schedule. Thus, we were faced with finding a method for collecting the kinds of rich data we needed based on the constraints of our targeted

group of participants. Our solution was to use an approach that combined the data collection richness of an interview with the asynchronous distribution of the questionnaire: the *asynchronous interview*.

For the purposes of this project, we define *asynchronous interview* as a one-on-one qualitative instrument that is delivered to participants through some available technology (such as email or third party tools for questionnaire distribution). Interviewees can then respond to questions at a time convenient for them. Such interviews differ from a questionnaire and other survey types in that, outside of demographic data, all of the questions posed to individuals/interviewees were open-ended. (See Appendix A for asynchronous interview questions.)

Like all good interviews, questions were designed to:

- Solicit focused responses on a common topic and in the respondents' own words.
- Avoid imposing limits on the length of or the nature of the responses.

Our asynchronous interview questions followed this pattern by asking respondents to provide answers to questions at any point in time during a 14-day period. After that period ended, the online mechanism for providing responses was closed, and no additional answers/responses were collected. The asynchronous nature of this approach meant respondents had the flexibility to take as much (or as little) time as they wanted to respond to questions (within a given time frame) and could do so during a time and in a place convenient for them.

Like any interview, the asynchronous interview can be seen as a burden for participants because of the time involved. One person who received our original request remarked, "It would take hours of my time to consider these questions and provide answers." However, in some ways, this participant's response indicated that the questions were indeed crafted that would achieve our original aims. All questions were collected into an online form within the same online data collection program (Survey Monkey), and interviewees used the spaces and options in this form to provide answers to different interview questions.

The interview problem solved, we turned our attention to determining our target population. The basis of our research study design hinged on the need



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to get responses from a very specific group of people—practitioners of technical communication. Because of this need, we employed *purposive sampling*, which is “primarily used in qualitative studies and may be defined as selecting units based on specific purposes associated with answering a research study’s questions” (Teddle & Yu, 2007, p. 77). In purposive sampling “particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices” (Maxwell, 1997, p. 87). This method allowed us to create a list of prospective interviewees we knew were working practitioners in the field.

Through conference presentations, presence within the field, publications, or references from other practitioners, we knew the practitioners initially selected to invite to participate in this project.<sup>2</sup> These interviewees represented individuals who had been practitioners in the field for between 0.3 and 37.5 years (the average interviewee had been working in the field between 10–20 years with a mean of 10.3 years of experience across interviewees) and represented individuals working in a range of positions in the field including “information security office program manager,” “consultant/trainer,” “president,” “senior technical writer,” and “technical writer.” (See Appendix B for more details on the job titles and years of employment reported by interviewees.)

We originally emailed requests for interviews to 54 individuals, and we received a 45% response rate from the original solicitations. Some of the individuals we contacted forwarded our request to other persons they knew were practicing technical communicators.<sup>3</sup> In the end, we reviewed interview responses from

30 individuals who were familiar with US-based perspectives on and trends in technical communication.<sup>4</sup> While the data were collected confidentially, we report it anonymously, which ensured that interviewees could feel free to speak frankly and honestly.

As with most qualitative research, we approached the analysis of the interviews by trying to determine common connections among them. We grouped common questions and topics. While there is a movement within the field to use a variety of theoretical approaches to qualitative data analysis (e.g., grounded theory), we opted for a much simpler—and still as rigorous—approach, and that is, simply let the data speak for itself. In the next section, we have excerpted a large number of direct quotes from interviewees, and we have taken care to ensure that data reported represents the majority of interview voices. In other words, we have not cherry-picked the data (which is obvious because some of it is not complimentary to academic research), nor have we only included a handful of voices that may have been “quotable.”

### Results from Practitioner Asynchronous Interviews

Using the results of these asynchronous interviews, we examined two of the initial, over-arching questions we asked:

- What should we, as members of the field, research?
- What methods should the field use to engage in research that most would find compelling, valid, and trustworthy?

A common interview analysis technique is to review interview data and determine common themes. This was the approach that guided our analysis at the start of this process. However, we soon realized the practitioner responses actually overlapped in some important ways with critical academic work related to research in the field (St.Amant & Meloncon, 2016). In other words, interview responses aligned with certain research-focused

<sup>2</sup> All of these individual were persons the authors knew via each individual’s affiliation with Society for Technical Communication, which means these individuals self-identify within the broad field as a technical communicator as defined in part by the U.S. Bureau of Labor (see <http://www.bls.gov/ooh/media-and-communication/technical-writers.htm#tab-1>) and as advocated by professional organizations such as the Society for Technical Communication (see <http://www.tcbo.org/wiki/about-tc/career-paths/technical-writer/>).

<sup>3</sup> In one case, our request was sent to a listserv in India, which generated a larger number of responses from technical communicators working in India. To keep the data for review more manageable and to maintain a focus on a common definition of technical communication as stated by the US Department of Labor and advocated by the STC, we confined the interview responses we analyzed either to respondents working in the US or who had long-term established careers working with US organizations and with the STC. We do, however, plan to further examine the responses provided by Indian technical communicators in a future publication on international views of the field.

<sup>4</sup> We eventually decided to exclude non-US responses from this entry because the published literature we are discussing either appears in journals associated with US-based organizations or are edited by US editors, housed in US institutions, and are the main source of publishing outlets for US academics. We do, however, plan to further examine these non-US perspectives in a future publication on international views of the field.

questions raised in prior examinations of research in the field. These questions were:

- What do we investigate/research?
- Who do we represent when doing research?
- Why do we create and disseminate knowledge via research?
- When (at what point in time) do we focus our research? (St.Amant & Meloncon, 2016, p. 274)

As such, we used these questions to organize interview data in the following sections. Interview data also divided along two over-arching areas: one that was industry/workplace specific and one that was profession/field specific. Thus, such a distinction is also used to organize the results presented here. Additionally, it is important to note that some of the points made by practitioners are not entirely new. That is, academics have researched in and around some of the questions raised by practitioners. But what is new is the fact that this is one of the few times that practitioners have offered their perspectives, especially in this number.

### **Question 1: What do technical communicators investigate/research?**

#### **Industry/workplace specific: How are individuals using technologies to do things/perform tasks?**

In their responses, interviewees emphasized that research should focus on studying human behavior—particularly behaviors associated with how individuals use a technology for finding, creating, and revising content. One interviewee summarized this sentiment, stating a central goal of research should be “developing quality content in support of user experience.” Another bluntly put it that research should focus on answering the question, “How do users use documentation?” It was a third interviewee, however, who addressed the complexities and nuances involved in research explaining it should focus on “How adults learn how to use technology. How to help them learn faster, retain what they learn, and self-serve when they forget.”

It also became clear that interviewees saw the goal of research as determining how the design of a technology affected the ways individuals use that technology to find, create, collect, or modify/revise content/information. Particularly, interviewees saw a distinct need for research on how users:

- *Locate or access information:* Such behaviors encompass questions including
  - What kinds of information/content are individuals looking for when they use a particular technology?
  - How are individuals using or interacting with a technology as they attempt to find the information/content they are seeking?
  - How effective are different media (e.g., text vs. video) at conveying content?
- *Create or develop content:* Such behaviors include questions such as
  - How are individuals using technology to create [original] content?
  - How does a technology’s design affect the content one creates with that technology?
  - Is it better to create content in certain media (e.g., video) vs. others (e.g., text)?
- *Collect/update/add to content:* These behaviors include questions such as
  - How are individuals using technologies to contribute to, edit, or update existing content?
  - How does the design of a technology/interface encourage certain users (e.g., technical experts) to contribute content to a project?
  - How does interface design affect the ways individuals create, edit, or feel encouraged to provide content?

Thus, in terms of researching human behavior, interviewees noted a need to research how individuals used a technology to achieve communication-based tasks and how technology design affects communication behavior.

#### ***Profession/field specific: Who are we as a field/ what does it mean to be a technical communicator?***

Several interviewees noted a need to re-think the title by which technical communicators present themselves, particularly outside of the field. In many instances, this idea was connected to conveying the value of what technical communicators do or could offer. As one interviewee explained, a major objective of research should be: “[H]ow to increase the credibility of our profession in industry (in many industries we are still seen as ‘clerks’ and ‘minute-takers’).”

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In other cases, this notion of naming was more internally focused and connected to establishing what members of the field do and what expectations one could (if possible) associate with the skills and knowledge members of the field are expected to have or to develop. As one interviewee pointed out:

The phrase “technical communication” is outmoded. No, not my preference, but that’s how the next gen of people who do this are viewing it. They’re calling themselves documentation designers, content specialists, information architects, and a dozen other things that are still 95% or more of the same job that technical communicators—by name—are doing. We need to include them or we’ll be done in another 10–15 years.

Interestingly, these comments on naming were in response to interview questions asking what the field should research. This connection seems to indicate a need for research into what members of the field call themselves. A more indirect research topic connected to this theme might be “How do titles affect perceptions and expectations within the field and outside of it?” as evidenced by one interviewee who called for research to examine “How the divisions of content into techcomm, marcom, support, training, and so on, are becoming less defined—and even arbitrary.”

### Question 2: Who(m) do technical communicators represent when doing research?

Many interviewees noted a need to conduct research on the audiences for technical content. One interviewee succinctly summed up this idea by responding to the question “What topics, questions, or problems should we be researching in the field?” with the two-word answer: “Audience analysis.” Another interviewee echoed this need in responding, “Find out what works. What techniques effectively communicate for different audiences (culture, age, gender, profession), different subject matters (scientific, engineering, general), and different purposes (to instruct, to report, to motivate).” Moreover, this individual seemed to feel such research has been needed for some time, yet, the call to do so had remained unanswered: “It seems this should have been done by now, but sadly, no.” Other interviewees addressed this idea indirectly in comments noting research should focus on “[T]he ability to consider

different points of view. [T]he ability to interpret different points of view. [T]he ability to understand the concerns involved in different points of view”—but the focus on audience and the need to understand audience needs and expectations remains.

***Industry/workplace specific: What specific audiences do we need to understand in today’s workplace/industry context?*** In addition to more research on audiences in general, a number of interviewees noted the need for more research on specific audiences—in particular, to better understand the communication expectations of younger technology users. This factor was evidenced by responses calling for research on “Content consumption habits of the Generation Z (also iGen, Post-Millennials): on mobile devices, video vs. text, etc.” This sentiment was echoed by other interviewees who noted generational differences related to technology use meant technical communicators could not assume what worked with audiences in the past would still work (or be perceived as useful) today. As one respondent put it “What are millennial usage patterns and expectations for technical communication formats and writing styles. What existing standards are becoming ‘old styles and methods’ for younger audiences.”

Interviewees also saw the necessity for learning more about audiences with technical backgrounds. In part, this focus involves the background of end-users/technically savvy consumers and how their expectations and needs differ from more novice users. As one interviewee explained, there is a distinct need for research on “How to write for expert audiences instead of novice audiences; or, how experienced audiences use technical info different from novice audiences.”

At the same time, a number of interviewees expressed an interest in better understanding the information seeking and using patterns of the subject matter experts (SMEs) with whom technical communicators work to create products. Part of this had to do with the changing nature of technical communication and the need to understand SMEs in order to communicate with them as peers.

Additionally, the desire for research on subject matter experts (SMEs) as an audience seemed to be driven by the need to better obtain information from them. One interviewee, for example, noted how a lack of such knowledge “can bring a problem to interviewing SMEs” when trying to obtain essential information.

Other interviewees echoed this sentiment. One, for example, explained technical communicators needed research on “Leveraging SMEs as content providers.” This individual also saw it as important to better understand SMEs in order to develop more effective approaches for collecting information from them: “[W]e need a way to use our tools without having to teach SMEs to use them, while still getting their writing into and out of our systems.”

***Profession/field specific: Who are we /technical communicators as an audience that must share information within and outside of the field?***

Interviewees also identified the need for academic researchers to understand the requirements and expectations of industry practitioners as an audience. As one interviewee summed it up: “Research must be reported in terms that practitioners, not familiar with the esoterica of the academic field, can nonetheless glean useful principles and guidelines.”

None of the interviewees dismissed academic research outright. Many of them, however, felt the ways in which academics report research findings fail to account for the information-seeking needs of industry practitioners. As one interviewee explained, “Most of us ‘professional’ technical writers feel we don’t have the time to read. How many do you know who can talk about a book on technical writing they have read? How many of them have read any book in the past year?” Another interviewee noted that research in the field should be reconceptualized as “A form of discovery that provides not only an ‘academic’ perspective, but also a ‘practitioner’ perspective for the common person, who is not an academic, to gain value from the research presented.”

Interestingly, several of the interviewees expressed an appreciation for academic research in and of itself. As one interviewee explained, “I realize academics have a heavy research process.” That same person, however, called for a mechanism that would also allow for alternative approaches to and perspectives on research to have a voice in research discussions in the field: “I would just say . . . try to lighten that. Allow more opinion and experience-based pieces every now and then. Throw in an editorial or something.”

**Question 3: Why do we create and disseminate knowledge via research?**

It’s one thing to ask, “What should we research?” It’s another to ask “Why are we doing/researching it?”

The interview responses provided important insights on the “why?” question. The responses all centered on a common topic: understanding human behavior. Specifically, many interviewees saw research as helping understand how individuals use/communicate with and through technologies. As one interviewee put it, the reason we do research is to determine “Why we should do things certain ways.” Another interviewee paralleled this sentiment in noting the objectives of research are “to provide solid evidence for why we should create [them] a certain way.” Such an understanding could help technical communicators achieve what one interviewee noted as the field’s main objective of “getting content to the right people in the right format at the right time.”

***Industry/workplace specific: What kinds of information are we trying to find and to share via our research?*** Of particular interest to interviewees was how individuals use technologies to:

- *Author/create content:* Such practices include not only how technical communicators use technologies to create content but also how the designing of a technology encourages (or does not encourage) users to create or contribute content. Some interviewees, for example, expressed a desire to better understand how to use different technologies more effectively to author/create content to meet user needs (e.g., “Chunking vs. longer pages (perhaps with expanding text) - what works better for users online and gets them information faster?”). Others saw a need for research that teased out nuances of content creation. One interviewee, for example, noted a desire for research that distinguished “editing as a separate process from writing” in relation to content creation.
- *Search for, locate, and access information:* Of particular interest was understanding how individuals look for information and what aspects of design affect search behaviors. As one interviewee explained, research should answer questions like, “Online indexes vs. search? Would customers use an index? Is there still a place for it? Effective use of keywords for searching, and what options make search in a content/help system most effective for users?” Interviewees also expressed a desire to understand how technological options could influence search behaviors (e.g., “Do they [users] object to using hyperlinks to find additional



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documentation (in other words — do they prefer longer topics over links?)”).

- *Communicate/convey ideas to others:* Of particular interest to interviewees was understanding the media (e.g., text vs. visuals or video) individuals use to access content and what technical communicators should do meet these expectations. One interviewee summed this idea up with, “Is the written text a thing of the past: do we need more graphical content or use of infographics to get the same amount of information across to our audiences?” Another interviewee similarly noted research should address questions like, “Do they [users] prefer video over print?” And one interviewee summed this discussion up with the direct but all-telling “Videos vs. PDF vs. help?”
- Also of interest to interviewees was determining how technical communicators should use newer forms of media (e.g., social media) to convey information. As one interviewee put it, “How much is social media playing a part in how documents/information are viewed in that medium?” Another interviewee asked researchers do more comprehensive reviews of media use and look at “The vital role of visual elements, multimedia, the web, and social media in technical communication.” And one interviewee advocated for more research on the role emerging technologies (“Upcoming virtual and augmented reality”) could play in how persons accessed and used information.
- *Collaborate with others—particularly technical experts/SMEs:* There was a desire among interviewees to better understand SME expectations of technology design to get SMEs to provide needed content in a format technical communicators can use. (“It’s often necessary to output that information for further updates by SMEs, but current tools have difficulty keeping the full semantic richness when SMEs are not using the same schema and tools.”)

**Field/profession specific: How can research help advocate for what technical communicators do as a field?** Many interviewees also saw an important connection between research and providing members of the field with the information needed to support, define, or advocate certain practices within the field. For some interviewees, effective research with applicable results was essential to supporting current technical

communication practices in the eyes of other members of an organization (either internally or externally). Interviewees were surprisingly specific at times in providing examples of the need for such research. As one interviewee explained, “Where I work, they don’t know how to use bulleted lists. They either put everything in a bulleted list or everything in a paragraph. I try to tell them about white space and using bullets for lists and paragraphs for explanations (for example), but they want to see research.” This notion of using research results to support best technical communication practices was echoed by other interviewees, such as one individual who summed this idea up as research was needed to “[provide] numbers/facts that help substantiate trends” associated with what technical communicators practice.

For other interviewees, research was seen as important to test (and verify or disprove) certain claims about how individuals use technologies. The underlying objective seemed to be to show how technical communication practices actually contribute value to an organization. As one interviewee noted “The assertion that ‘good documentation reduces calls to tech support’ has never been proven. It would be great to have metrics on that.

Additionally, some interviewees viewed research as a mechanism for dispelling lore-based arguments that guide some communication practices. As one interviewee noted: “Many bloggers say that ‘PDF is dead’ and should no longer be produced, but there is no proof that customers don’t prefer it.” For still others, there was a perceived need for research to better understand some of the research results individuals already had: “I have other document design questions that I have tried to research but I often end up without a clear answer and never find research to support what answers I find.”

### Question 4: When (at what point in time) do technical communicators focus our research?

The interview responses revealed a distinct desire for research to focus on the “here and now” and the context of the “real world” workplace vs. discussions of more theoretical—and timeless—topics.

**Industry/workplace specific: What are the current contexts of the real world and how do these contexts affect uses of technologies?** One over-arching concern was that much of the research reported in technical communication journals is seen as disconnected from both the workings of modern society and actual



workplace scenarios. As one interviewee put it, research should focus on “Studying actual users doing the work.” Another interviewee called for research that focused on “Real-life case studies in a variety of industries. A full understanding of the time pressures and complexities of documentation in the field.”

For several interviewees, this problem was connected to the fact that so much of the published research focuses on classroom contexts or involves students as subjects vs. studies that observe human behavior outside of formal, educational settings. One interviewee, for example, remarked that researchers needed to focus on “Access to real people, both technical writers and the users they write for. Don’t do studies using your classroom of students and then arrive at a conclusion.”

As a result of these factors, a number of interviewees perceived current, published scholarship in the field as limited in applicability to what technical communicators in industry require to work effectively in current contexts. One interviewee explained there was a distinct need for “Real-world situations - participants who reflect real users (not just students, for instance) and practicable, usable results. I’d like to see more research that gives me tips I can incorporate into what I am doing now or might do in the future.”

Additionally, some interviewees saw this failure to focus on the present as connected to a preference to examine the theoretical and the abstract. As one interviewee stated:

Research in the field of technical communications needs to expand and include industry needs and perspectives. A significant amount (not all) of what passes for research in technical communications today looks at arcane composition based theory & re-examines oft-examined questions. Such research does little to further or improve our existence as humans & consumers of data/information in a connected society.

For a number of interviewees, the solution was not to overhaul academic research agendas but to move the site in which research was done from the classroom to the context of modern society. One interviewee voiced this idea as follows:

I strongly believe in the value of an ongoing knowledge exchange between academia and

industry. This is best achieved by constant engagement on a number of levels and in a variety of approaches and projects: corporate relations, joint research projects with students and faculty, work shops, speaker exchanges, event collaboration, recruiting/hiring practices, think tank level collaboration.

Interestingly, no interviewee called for a complete end to using students to study usage behavior. In fact, one interviewee actually requested more research on such behavior in order to understand how this particular audience (an important technology market) used technology, noting a need for research on “Usability and UX studies of existing college students.”

What several interviewees did ask for was to expand the pool of subjects studied beyond just students to include more individuals from a wider range of backgrounds—and thus more representative of the various audiences technical communicators need to consider in modern society. As one interviewee explained, “Consider [doing more] ethnographic research to gain a full understanding of how teams are investigating or addressing ways to manage information across the enterprise.” Such an expanded view of the modern audience also included extending studies of the behaviors of college-age students beyond just the parameters of educational contexts—or as one interviewee put it, there was a need for “Usability and UX studies of 20–[30] year olds in the workforce,” which would be different from studying them in the classroom.

***Profession specific: How effective are current educational programs in the field at preparing technical communication student for the current workplace context?*** A number of interviewees noted a parallel interest in connecting the training of technical communication researchers—specifically, students currently enrolled in technical communication programs—to current workplace contexts. In fact, in response to the question, “What topics, questions, or problems should we be researching in the field?” one interviewee replied, “How to best prepare students for entry into techcomm-related fields.” Another interviewee stated “What transferable skills Technical Communicators can bring to new positions?” The problem for some interviewees, however, was they felt academic programs were failing to prepare students for

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the current workplace. As one interviewee explained “[M]any of the graduates do not have the necessary technical backgrounds to succeed once they obtain a position in industry.”

For one interviewee, the failure to realize the current industry need that technical communicators bring some form of technical expertise to the current workplace threatened the legitimacy of individuals currently working in the field. As that person explained:

Technical writers, today, do not have enough technical/science knowledge in order to be effective contributors on technical product development teams. They also do not have the necessary skills to successfully translate engineering requirements and medical technology standards/regs/laws into end user deliverables. The product development/engineering SME perspective of technical writers has changed from team member peer to that of a desktop publisher, i.e. taking poorly written content from SME’s and make it “look pretty.”

This situation, moreover, was seen as having negative effects on the field. As one interviewee noted, “Bringing industry perspectives to research in technical communications in the educational research setting is an urgent need of the times.” While this response was perhaps the most critical of educational programs in the field, it was by no means unique in expressing—directly or indirectly—concerns relating to how well these programs prepared students to enter today’s workforce.

This situation, however, was not perceived as insurmountable. Rather, for a number of interviewees, the solution to this problem involved undertaking efforts that could better connect today’s technical communication student to the expectations of the modern workplace. Some interviewees suggested fostering such connections via mentoring programs that paired current students with technical communicators currently working in industry:

I see great potential for pairing practitioners with academics to leverage both research and practical experience. I am also a passionate proponent of partnerships between practitioners and students, with the students taking the lead on research and the practitioners contributing subject matter expertise and practical experience.

Thus, as with perspectives on the timeliness/time-oriented focus of research in the field, the situation involves establishing effective partnerships that expose students to a broader perspective of the field and that can help them better understand and (ideally) address the needs of the modern workplace.

### Aligning practitioners’ questions with academic research

The information from the interviews ranges from the broad to the very specific and indicates the breadth and depth that is needed in research in technical communication. Further compounding the research divide is the number of sites and locations that technical communicators work, which makes it difficult to easily align academic interests with those of practitioners.

When comparing the information from interviewees to published research in the field, there are a number of areas where academics do have research that can help further define questions raised by practitioners. For example, Blythe, Lauer, and Curran (2014) report on survey results of now-practicing technical communicators who are alumni of academic programs. While this could potentially shed light on whether programs are preparing students for the workplace, a concern raised by the interviewees, the study had several research design problems that limited its application of findings. However, this information, combined with programmatic research (Meloncon, 2009, 2012, 2014) and information on job ads data (Lanier, 2009; Brumberger & Lauer, 2015), as well as insights from select companies (Baehr, 2015; Dubinsky, 2015; Kimball, 2015) could provide important insights that could be used by academic programs in preparing students for current workplaces.

Throughout, the interviewees suggested that the best research would be done outside of classrooms and with actual users. Academics still tend to rely on textual analysis—the texts produced by people—to draw conclusions, but there have been a number of recent studies where researchers have incorporated actual users into the process. In another example, Pigg (2014) did an in-depth study around one freelance professional communicator’s social media use. While this could be useful by providing a rich case study, it does not go far enough in answering the applied and practical questions that many of the practitioners raised about the use of technology in creating and finding content.

Academics have also provided important insights into areas of content management that intersect with a number of questions presented above. Andersen's (2014) work provides important insights into how academic research can enhance the use and application of content management systems in workplace environments.

The fact that one of the organizing strategies involved looking at the profession was telling, particularly from a research perspective. The field has tried to define itself but has yet to come to any sort of agreed upon conclusion (e.g., Faber, 2002; Hart & Conklin, 2006; Hughes, 2002; Kneivel, 2006; Locker, 2003), and in recent years, these conversations have waned. Instead, academics have moved to reframing the issues of definition and legitimacy to those of professionalization (e.g., Brady & Schreiber, 2013; Carliner, 2012; Cleary, 2012; Coppola, 2012), which, again, may be another way to connect and bridge our academic identity to that of the workplace.

These limited examples point to two important takeaways. One, academics have been researching and do research topics that directly impact practitioners, but that research might often be framed in a way that is not easily accessible. Two, academic research does need to do better at building on existing work in ways that could answer some of the questions raised here but also to construct better, and more relevant, studies that could have potential generalizable application.

### Where Do We Go from Here?

Without doubt, practitioners understand and appreciate the value of research, but they also see major divides between the current academic research being published and the needs for research in their jobs. In large part, the data from the interviews opened up more questions than they answered. At this point, academics might ask how they can fit anything more into their already over-stretched job descriptions. One response would be to encourage academic researchers to engage in more collaborative partnerships involving working with practitioners in ways that can be folded into the research, teaching, and service tasks academics already do. And there seems to be interest among the industry practitioners interviewed to engage in such relationships.

Many interviewees, for example, noted the value and importance of academic-practitioner collaborations in relation to research. As one interviewee put it, "I see

great potential for pairing practitioners with academics to leverage both research and practical experience."

However, attempts at doing this in the past have not produced tangible results (e.g., Andersen, 2013; Blakeslee, 2009) and/or not been sustainable (STC and CIDM grants programs). There are a multitude of reasons for this.

However, there are initial, reasonable, and sustainable steps that members of the field can take in the short-term to begin to bridge the research divide and find effective ways to collaborate—ways that address the different professional contexts in which individuals work. Based on the interview data, we see two immediate steps:

- Identifying and using venues for sharing research with members of other segments of the overall field.
- Seeking out opportunities to collaborate with individuals in other areas of the field when engaging in research.

In the next sections, we provide suggestions for how to realize such courses of action.

### Sharing research results across the field

Some of the concerns practitioners have about academic research can easily be answered with a better understanding of the work academics are doing. Some of the interviewee comments, for example, indicate a lack of awareness of current academic research that can address certain workplace concerns. (Certain responses also indicated a lack of understanding about aspects of academic programs in the field.) However, the sharing of academic research is a two-way street; that is, if academics take extra steps to share information with practitioners, practitioners should similarly be expected to take the time needed to read and consider such information.

While we (the authors, who are academics) understand the necessity and pressures of academic publishing, there are relatively easy approaches academics can use to better share their work with practitioners. For example, journals that provided mechanisms for highlighting how the work is applicable to practitioners were appreciated by interviewees who noted that such features helped contextualize academic research findings. As one interviewee put it: "I love the practitioner takeaway section in the TC journal. That's

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very useful.” A number of interviewees also saw the value the academic approach could bring to certain aspects of research (e.g., “academic rigor” seen as an important research skill), and many noted the value of academic-practitioner collaborations in relation to research: “I see great potential for pairing practitioners with academics to leverage both research and practical experience.”

Additionally, several interviewees recognized the value of academic research in concept but considered the academic approach to writing up/sharing research results as not matching practitioner realities or needs. As one interviewee explained, a major perceived limitation of academic research was it lacked “[r]eal-world situations - participants who reflect real users (not just students, for instance) and practicable, usable results.”

In this section, we’ll discuss these items and provide suggestions for how to engage in and report research in ways that address the needs of both the academic and the practitioner segments of the field. The key is to share research results in a way that, in the words of one interviewee, presents them as “A form of discovery that provides not only an ‘academic’ perspective, but also a ‘practitioner’ perspective for the common person, who is not an academic, to gain value from the research presented.” To achieve this objective, researchers in academia or industry could use the following strategy when writing up/reporting research results:

**Note takeaways/applications of results at the start of the entry** As one interviewee explained, “Research must be reported in terms that practitioners, not familiar with the esoterica of the academic field, can nonetheless glean useful principles and guidelines.” To address this need, researchers should consider drafting manuscripts to include a section noting how this research can be applied in to workplace contexts, if possible. For those journals that already require manuscripts to include such an entry, authors should use those sections wisely (i.e., be explicit about such applications) to maximize their potential. As one interviewee noted, “I’d like to see more research that gives me tips I can incorporate into what I am doing now or might do in the future.”

Additionally, abstracts and/or introductions provide the best opportunity to clearly and directly note what application practitioners can take from an entry or where in the entry a discussion of such applications occurs (e.g., “A discussion of the applications of these results can be found in the section . . .”). As a number of interviewees noted, their time to read is limited,

and the more researchers across the field can do to let practitioners know where in an entry they can find information on how to apply research to industry contexts, the better practitioners can make use of that research.

It should be noted that these approaches are not an aspect associated with academics or practitioners. Rather, they represent an approach both groups should employ when sharing research through a particular venue—academic journals—open to members of the overall field for sharing information.

**Have practitioners review manuscripts and suggest how to add such applications** While academics and practitioners both appreciate that technical communication is highly contextual, there are also many opportunities to use research that is conducted in one context in another. In certain situations, academic researchers might not be aware of how their results apply to industry contexts, and the alternative (knowing the applications of industry research in academia) can also be true. In such instances, suggestions from other areas in the field (e.g., industry practitioners or academic researchers) can help address such items.

To assist with this process, editors of publications in the field should consider having both industry practitioners and academic researchers participate in the peer review/manuscript review process. The idea is that members of both groups could provide suggestions for how a manuscript might be revised to meet the needs and expectations of a broader audience within the field. Editors might also consider creating a reviewer pool comprised of academic researchers and industry practitioner who could provide insights on how research results might be applied in—or how the reporting of results in an entry might be revised to better address—different contexts.

**Creating parallel reports across different venues** As one interviewee noted, practitioners rarely have the time to read all of the research journals in the field (or are even aware of what they are). Academic researchers should thus not view journals as the only venues for sharing research results with the field. Rather, they should query practitioners to determine what other sources individuals in industry use to locate research results (e.g., magazines, websites, blogs, etc.) and design parallel research reports for those venues.



This is not to say academics should forsake publishing research results in academic journals in favor of more practitioner-oriented venues (e.g., a widely read technical communication blog). Rather, academics should consider drafting parallel (i.e., tailored to the expectations of different genres) reports of their research for dissemination via industry venues (e.g., magazines, blogs, or websites) or other channels (e.g., Facebook posts or Twitter tweets). As one interviewee put it, there is a distinct need for “Communication of the research results and inferences in academic venues and to practitioners [in their venues].”

Practitioners who conduct research should similarly take steps to share their findings (when possible) through venues such as trade publications and blogs that could provide academics with insights into what concerns practitioners are facing. Practitioners might also consider working with journal editors and professional organizations to share research findings—or present research problems or questions—via other prospective outlets. For example, the “Recent and Relevant” section of the STC journal *Technical Communication* is currently used to share brief (e.g., 250 words or fewer) summaries of research published in academic journals in the field with STC members; perhaps practitioners could share their own research through such venues. Similarly, practitioners could use options like podcasts—such as those the IEEE Professional Communication Society uses to share ideas and information (including how to apply theory or recent research) with members/engineers—to share research-related items with the greater field.

These suggestions are by no means comprehensive. They do, however, provide initial approaches that members of the field can consider that are practical, doable, and sustainable. By using such strategies, members of the field can make the results of their research more accessible across the field without having to sacrifice the more standard conventions of research reporting associated with their profession.

### Working with/engaging with the greater field on research

All interviewees noted the need for research to facilitate industry practices. In some cases, the need was to obtain information to craft new practices; in others, it was to confirm existing practices were still effective. The key to making research “real” to interviewees was a matter of the topic being researched. As interview

responses reveal, “academic” research topics do not resonate with practitioner audiences. Rather, as one practitioner noted, academic research tended to focus on “arcane composition based theory & re-examines oft-examined questions.” Thus, using research to connect to practitioners involves a matter of the topic of the research itself.

To be clear, we are not advocating that practitioners or industry needs to set any academic’s research agenda—or vice versa. As academic researchers ourselves, we appreciate academic freedom and would encourage the multitude of ways other academic researchers choose research questions they want to answer. Similarly, industry practitioners need to focus their research on that which connects to the needs of their own jobs and workplace contexts. However, we are advocating for more awareness of and attention to the ways individuals in the field can share research in ways that are of use to a larger number of individuals in the field. Or, as an interviewee put it, “Research in the field of technical communications needs to expand and include industry needs and perspectives.” The challenge becomes determining what topics are of interest across the field so one might plan research accordingly/in ways that can benefit multiple audiences.

Doing so involves learning more about the needs and perspectives of the “other” segments of the field. For academics, the first and most important step in this process would be to regularly query practitioners to see what topics are of interest to them. This strategy seems obvious, but several interviewees seemed to feel this factor—a failure of academic researchers to reach out to practitioners to learn about such items—was at the heart of disconnects involving research in the field. As one interviewee succinctly put it in responding to the question *What approaches should we use to research these topics, questions or problems?* —“Talk to industry.”

For academics, it is important to remember that many of the interviewees specifically underscored they would welcome research done within their organizations. Moreover, there are models for fostering collaborations where academic researchers enter workplace settings to examine problems with specific industry contexts.<sup>5</sup> The

5 The original iteration of the University of Minnesota’s Corporate Affiliates Program is one example of such a research-based partnering. In this program, academic researchers meet with representatives of local industry to identify topics of interest to both parties and propose on-site/industry-based research projects of interest to both. Academics whose research proposals are accepted by industry representatives are then allowed to conduct research within the context/setting



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challenge becomes finding the opportunities and venues for such exchanges—such talking—to take place. As one interviewee put it:

I strongly believe in the value of an ongoing knowledge exchange between academia and industry. This is best achieved by constant engagement on a number of levels and in a variety of approaches and projects: corporate relations, joint research projects with students and faculty, work shops, speaker exchanges, event collaboration, recruiting/hiring practices, think tank level collaboration.

And there is a range of approaches academics can use to learn more about practitioner research interests and to engage in the interactions needed to pursue research agendas that benefit both parties.

**Read both academic journals and trade publications/industry magazines regularly** The simplest and quickest way to determine what topics are of interest to the “other” segment of the field is to read the same sources they do to remain current in their jobs, find needed information, and anticipate trends that might affect them. As one interview noted, the key to knowing what research topics practitioners were interested in came down to “Reading some of the business magazines to spot trends (Inc., Fortune, Fast Company, etc.).”

**Use internship programs to learn about research interests** Many educational programs in which academics work have internship programs or an internship requirement as a part of their curriculum. Such programs provide a direct link to practitioners and a mechanism that could be used to determine the kinds of topics or problems local industry sees as needing research solutions as well as connections to academics who might be doing research in an area of interest to industry. To this end, both academics and practitioners might consider revising approaches to internships to create mechanisms for learning about the research activities of the “other” group (e.g., having student interns report on how they used different concepts from

technical communication research to guide different internship activities).

**Tap industry advisory boards** Some academic programs have industry advisory boards—groups of individuals from local industry—that are often asked to provide input on programmatic matters. Such boards can also provide academics insights into research questions of interest to local industry and provide industry with insights into the research being done by faculty at the related institution. To this end, a regular activity of such boards could be to identify research topics of interest to practitioners in local industry and a summary of the current research activities/projects of faculty in the related program.

**Attend conferences/meetings for members from the “other” part(s) of the field** Academics and practitioners should consider going to each other’s conferences to gain a better understanding of the concerns, needs, and research that the other side is doing. Such attendance, moreover, needs to involve more than just attending presentations. It should also involve engaging in a range of informal discussions about research (both the research one is doing and asking about the research needs of others) and even presenting to gain suggestions and input from other audiences in the field.

**Coordinate joint events/co-locate events** Often, academics attend their conferences, practitioners theirs, and the two groups rarely have the opportunity to share information and exchange ideas on a broader scale across larger groups. By having coordinating joint or co-located academic-industry events and inviting participants from both sides to attend both, individuals can create an atmosphere where academics and practitioners can gain a better—and larger—understanding of each other and better explore prospective research overlaps. (An example of such a co-located event can be seen in the pre-conference the STC’s Academic SIG has hosted the day before the annual conference of the Council for Programs in Technical and Scientific Communication.)

**Host a research symposium** In comparison to a conference, a symposium is a smaller, more informal meeting in which individuals briefly present research results or ideas and then engage in discussions with other attendees. As such, symposia tend to be easier and less expensive to coordinate than conference, and their smaller size and more informal, discussion-based nature makes them a good venue for sharing ideas

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*of that industry partner, and the results of that research are both shared with the industry partner and developed for publication in technical communication academic journals. (See, for example, St.Amant, 2003 and Flint, Van Slyke, Starke-Meyerring, & Thompson, 1999.)*

about research. Hosting such a symposium and inviting academics from local institutions and practitioners from local industry could be an effective way to begin exploring prospective research overlap in more open and in-depth ways. (An example of such a symposium is the annual Symposium on Communicating Complex Information/SCCI—open to both academic researchers and industry practitioners and designed to share research across the field.)

The approaches provided here are by no means comprehensive. In fact, the authors invite readers from academia and industry to provide suggestions on other prospective methods for fostering research-based collaborations or on how to modify or expand any of the strategies described here. What these entries do provide are suggestions for how to find common ground in approaches and areas/topics of mutual interest—topics that can guide research in ways that are meaningful to a wider range of individuals in technical communication.

## Conclusion

Research is a necessary aspect of any field, and the interview responses from practitioners both support this idea and provide a current perspective of this topic. The question now becomes, how do we use these results? At this point, we know that while research is valuable, the practitioners interviewed feel a major divide between what is published in technical communication journals (i.e., academic research) and what they need for their own work in industry. Even though part of this perspective might be based on a lack of awareness on the part of practitioners of what academics do, it does point to the vital need to make academic research more available to practitioners and, more importantly, to foster more interaction between the two groups.

In some ways, the results of the research reported here confirm what past research has told us (e.g., Hayhoe, 2003; Spilka & Mirel, 2002): The two sides of technical communication—practitioners and academics—still live in a house divided. However, while the house may be divided, it remains our responsibility to find ways to engage one another in meaningful ways. The fact that 30 practitioners gave so much of their time and insights to provide rich and detailed data points to the potential and possibility of where the field goes next speaks volumes about the importance of this topic. The key now is for academic researchers and

industry practitioners to communicate and collaborate in ways that can help all members of the field exchange, appreciate, and benefit from the research done across technical communication writ large. By employing some of the approaches noted here, such sharing and synergy can both begin and be sustained in ways that will benefit the greater field both now and for the foreseeable future.

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## Reflections on Research

### Appendix A: Interview Questions

1. What is your job title?
2. In what country do you work
3. How long have you been at your present position
4. What industry does your company belong to?
5. What topics, questions, or problems should we be researching in the field?
6. What approaches should we use to research these topics, questions, or problems?
7. What are the most important skill(s) to have to conduct research?
8. How would you define research?
9. Please provide any additional comments that you would like us to know.
10. What is your name and email address? So we can follow-up if we should have any questions. Your answers will remain confidential.

### Appendix B: Self-Reported Job Titles and Years of Experience of Interviewees

Information Security Office Program Manager	11 years
Consultant/Trainer, Technical Publishing	15 years
Corporate Social & University Influencer Relations Manager	2 years
Head consultant	27 years
Sr. Technical Writer	2 years
Principal technical writer	20 years
Information Developer	2 years
User Experience Researcher	9 years
Writer	4 months
Principal Consultant/Owner and Principal QA Labeling Specialist	4 years
Proposal specialist	37 1/2 years
Director	19 years
Product Director, Healthcare Solutions	7.5 years
Documentation Manager	30 years

Staff Technical Writer	7.5 years
Principal	13 years
Senior Technical Writer	4 years
Business Consultant	5 years
Senior Medical Editor	6 years
Independent Communications Consultant	10 years
Principal Technical Writer	16 years
Web Editor and Information Architect	1.2 years
Technical writer	8 days
Technical Publications Manager	2 years
Technical Communicator	26 years
Sr. Business Systems Analyst	3 years
Executive Director	14 years
Senior Technical Publications Manager	16 years
President	10 years
Technical Writer	18 years



# Technical Communication, Academic Research, and Patient Education: A Multidisciplinary Collaboration

By Corinne Renguette, Indiana University-Purdue University Indianapolis

## Abstract

**Purpose:** Recent changes in health care in the US have made it important for health information to become easier to access, understand, and use. Making medical decisions without adequate information can lead to poor health outcomes. Providers are being incentivized to improve the quality and value of patient-centered communication and care. Technical communication practitioners can collaborate with interdisciplinary professionals to help these initiatives succeed.

**Method:** A patient education software application was developed with an interdisciplinary collaboration between a medical animation company, a surgery clinic, and an academic researcher who is also a technical communication practitioner. User-centered design principles were employed in the development of the application. Interviews were conducted to reveal insights about the application's influence on the language participants used to discuss the procedure.

**Results:** Participants who used the software application to learn about the procedure were able to consistently recognize and recall more informational and procedural knowledge than participants who did not use the application.

**Conclusion:** Collaborations similar to this can enhance the design, creation, development, and assessment of technical communication materials in patient education settings to help improve the odds that patients will understand more about their health and be able to make better decisions and can contribute valuable information to the technical communication curriculum. Best practices in technical communication can inform user-centered design, development, and assessment of educational materials in a variety of settings.

**Keywords:** multidisciplinary collaborations, patient education, user-centered design

## Practitioner's Takeaway:

- Design, creation, development, and assessment of patient education materials can be enhanced with collaborations between technical communication practitioners and industry partners.
- Using examples of interdisciplinary collaborations in the technical communication curriculum can help students develop much-needed workplace literacies.
- Interdisciplinary collaborations can increase awareness about what technical communication practitioners can do to improve the product development process in many fields.

## A Multidisciplinary Collaboration

### Introduction

Health care in the US is a constantly evolving system due to high costs of insurance, treatment, and medications; high costs related to litigation; population expansion and an increasing number of aging people; improvements in technology; and growth in the medical professions (Conklin, 2002). Recently, scholars have suggested that, due to changes in the health care system in the US, it's even more important to find ways for health care providers to implement health literacy practices that make health information easier to access, understand, and use (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; Briglia, Perlman, & Weissman, 2015; Johnson, 2014; Koh et al., 2013; Meloncon & Frost, 2015; Rowell, 2015). The American Recovery and Reinvestment Act of 2009 and the Affordable Care Act of 2012 offer incentives for providers to improve access, accountability, quality, and value of patient-centered care (Kocher, Emanuel, & DeParle, 2010). Health communication is one of the objectives in the U.S. Department of Health and Human Services *Healthy People 2020* initiative (USDHHS, 2014). Low health literacy in combination with poorly designed health education and informed consent materials causes difficulties in patient understanding and poor health outcomes (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; Johnson, 2014). Patients often make medical decisions when they may not have adequate information (Clayman et al., 2013; Wee et al., 2009). Examining patient education materials from the perspective of the principles of clear communication and user-centered design is critical (Lazard & Mackert, 2015).

Using best practices in theories of teaching and learning and in workplace settings can help the design, creation, development, and assessment process (Johnson, 2014). Technical communication professionals can collaborate with interdisciplinary professionals and “help improve patient-centered language and practices across a multitude of media and document types, and to contribute to solving such problems as the health literacy crisis . . .” (Meloncon & Frost, 2015, p. 7).

In addition, using authentic content in the technical communication classroom can help students learn what Cargile Cook (2002) identified to be six *layered literacies* (basic, rhetorical, social, technological, ethical, and critical literacies) that are necessary to apply classroom

knowledge to authentic settings. Cargile Cook suggests that students participate in “activities that promote collaborative team-building skills and technology use and critique” (2002, p. 8). She also notes that visual literacy must be included in every one of the six literacies. Basic literacies include being able to read, write clearly, and design appropriate documents. Rhetorical literacies add another layer of complexity—the writer also needs to be able to use analysis strategies to make appropriate choices for taking the audience, purpose, and organizational context into further consideration in the design and writing process. Social literacies include collaborations and working in teams. In addition to being able to use appropriate technologies for workplace projects, technological literacies include making appropriate choices for the design and development of the technology and assessing how user-centered those designs are. Ethical literacies permeate the layers and are demonstrated with choices that show an awareness of “legality, honesty, confidentiality, quality, fairness, and professionalism” (STC Ethical Principles for Technical Communicators, as cited in Cargile Cook, 2002). Critical literacies are demonstrated when the students can acknowledge and consider power structures and analyze possible improvements for reducing social and technological barriers. The collaboration between working practitioners and the classroom setting can create students who will be able to successfully navigate future roles.

Some of the tools and ideas used in teaching and learning can easily be transferred to other fields, including patient education (Johnson, 2014). Therefore, collaborations between interdisciplinary academic and practicing professionals can enhance the design, creation, development, and assessment of technical communication materials in patient education settings to help improve the odds that patients will understand more about their health and be able to make better decisions.

This paper presents an interdisciplinary collaboration between industry partners in a bariatric surgery patient education setting and an academic researcher who is also a practicing professional in the technical communication field. As a practicing technical communicator, I worked with a multimedia company and a medical provider to develop and revise a software application that would help the clinic's patients learn about the pre- and post-surgical lifestyle changes and implications of the procedure before making a decision about whether or not to have the surgery (informed

consent). As an academic researcher, I wanted to see what the patients learned from the educational materials that were created to teach them about bariatric surgery and if this improvement in the materials would make a difference in the language they used to discuss the procedure. I will present examples from the data and discuss how best practices can inform user-centered design, development, and assessment of patient education materials and how collaborations similar to this one can contribute valuable information to the technical communication curriculum.

First, it is important to understand a bit about the background of patient education, health literacy, and informed consent. Then I will explain some background of the specific participants in the study, bariatric surgery, obesity, and the intervention used. Then I will present the data and results and discuss implications and future directions.

### **Patient education, health literacy, and informed consent**

According to the American Medical Association website (2007), in the US, over 90 million people have limited health literacy skills. This means that most people do not understand even the most basic health information. Patient education materials are usually written at a level much higher than the average person in the United States can understand. Low health literacy directly correlates with poor patient health outcomes (Berkman, Sheridan, Donahue, Halpern, & Crotty, 2011; Frankel, 1984). Improved health literacy has been shown to make a difference in both patient satisfaction and in patient health outcomes. So, health literacy is not only about receiving and comprehending health information but also about being able to engage with the material and use the information to make better health decisions. To understand more about health literacy, let's start with looking at literacy in general. The word *literacy* has a complex set of ideas behind it. Many years ago, James Gee (1989) explained literacy by, first, defining the important difference between *acquisition* and *learning*. This distinction between acquisition and learning will provide the foundation for the definition of literacy I use in this paper:

*Acquisition* is a process of acquiring something subconsciously by exposure to models and a process of trial and error, without formal teaching. It

happens in natural settings that are meaningful and functional. This is how most people come to control their first language. *Learning*, on the other hand, is a process that involves conscious knowledge gained through teaching, though not necessarily from someone officially designated a teacher. This teaching involves explanation and analysis, that is, breaking down the thing to be learned into its analytic parts. It inherently involves attaining some degree of meta-knowledge about the matter. (1989, p. 20)

According to Gee, we *acquire* our first, primary language, or our L1, orally and mostly subconsciously, through enculturation, or being surrounded by others who use the same L1 conventions and picking them up naturally. Gee calls this our “primary discourse” (p. 22). Literacy, on the other hand is learned, not acquired. According to Gee, “literacy is control of secondary uses of language (i.e., uses of language in secondary discourses)” (p. 23). He explains that there are many different types of literacy, and that in order to “control” these secondary uses of language, the learner must also have “some degree of being able to ‘use,’ or to ‘function’ with” that language (p. 23).

Health literacy has been defined as the ability not only to read and understand health information but to transfer that knowledge and “act on it”—to use it to make informed decisions (NIH, 2006). Therefore, being able to function with the complex language of health information can be considered a secondary literacy.

Anyone who has tried to teach someone something, whether it be by training, academic coursework, or workplace knowledge, knows that it is difficult to measure learning. Often, the only evidence that learning may have taken place is the language learners can produce by the end of the educational process. Sociocultural theory, based on the research and theories of Russian psychologist and semiotician Lev Vygotsky, is a useful framework to analyze second language acquisition (SLA) research (Lantolf, 2000). Vygotsky's research included the idea that both social and cultural contexts influence development (Wertsch, 1985). He also recognized that learning complex scientific terminology is similar to learning a new language. Many scholars have expanded on his work more recently. One area of Vygotsky's work that has been used in SLA is that of mediation. Mediation occurs when someone (or in this case something, a tool) intervenes and aids the process

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of connecting new information to already existing information. When learners interact with a mediator (could be a teacher, a peer, language, or a tool), gain new information, and connect it to their current knowledge, they can perform more complex mental tasks than they could have performed previously (1986). Eventually, that knowledge can be transferred to other tasks so they are able to independently do what they could previously do only with the mediator (Vygotsky, 1978, 1986). This knowledge transfer is what the medical professionals wanted the patients to be able to do.

The medical professionals wanted the patients to not only learn about the pre- and post-surgical lifestyle changes and implications of the surgery before they made the decision about whether or not to consent to it, but they also wanted the patients to connect this new knowledge to their current knowledge and to eventually be able to transfer this health information to their own contexts and lifestyles. The idea of a computer as a mediator is not new (Salomon, Perkins, & Globerson, 1991), so in this study, I was hoping to see if the software application may have had an effect on how they used language to demonstrate their learning.

Medical professionals have been revising written materials and decision aids for many years, and researchers have been looking at these enhanced patient education materials. Improvements include trying to make them more clear and concise, adding visuals and videos, and creating multimedia materials, only to show inconsistent results in patient understanding regardless of the types of educational materials used (see, for example, Flory & Emanuel, 2004). In addition, principles of visual design theory are important to help create a positive user experience that promotes active learning (Bellwoar, 2012; Lazard & Mackert, 2015). Some studies have looked at patient satisfaction with the education process (Eggers et al., 2007), quality of online information (Willerton, 2008), patient anxiety levels (Eggers et al., 2007; Wright, 2012), and recall of information in multiple choice tests (Bader & Strickman-Stein, 2003), but few studies have looked at surgical consent forms since Grunder (1980), and few have attempted to measure what patients learn by looking at interview discourse.

Often, the focus of improving educational materials is on the readability of those materials (Windle, 2008), which is important because of the specialized language in the medical field (Wright, 2003; 2012). However,

simplifying the language of the information is often not enough to help patients (Jenson, 2012, as cited in Lazard & Mackert, 2015). The materials must be created and developed with user-centered design principles in mind as well (Lazard & Mackert, 2015). Even if medical professionals use the Flesch-Kincaid, SMOG, or Fry readability formulas, the educational materials may not teach patients enough to make an informed decision. Anyone who has had even a simple surgical procedure likely realizes that informed consent documents often still do not “inform” patients clearly. These documents are frequently still written in a small font on a long form with legal terminology and medical jargon and are signed right before the procedure for liability reasons, not for educational purposes. Even if medical professionals allow time for questions, not all patients know what to ask. Another important aspect of this collaboration is the continued improvement of the patient education and informed consent process.

### Bariatric surgery and obesity

Bariatric surgery is one treatment for severe obesity that involves permanent lifestyle changes that, if not understood thoroughly, could have devastating impacts on the patient's future (Eggers et al., 2007). Obesity is a difficult term to define because the definition varies. The most commonly used definition comes from the dominant discourse in the medical field and is based on BMI, or Body Mass Index. According to this view, a BMI over 30 indicates obesity; if it is over 35, it indicates severe obesity. The dominant discourse also states that patients who are categorized as being severely obese and who also have other health issues (such as high blood pressure, heart disease, etc.) are at a higher risk for death due to those comorbidities. The participants in this study all had a BMI over 35 and were all categorized by their physicians as being severely obese. They all had other comorbidities and, thus, they were learning about bariatric surgery as a weight-loss assistance option. This procedure reduces the effective size of the stomach to decrease feelings of hunger. If patients are considering this type of treatment option, before making the decision, they need to understand the critical lifestyle changes & pre- and post-surgical requirements as well as what happens in the actual procedure.

This clinic was committed to making sure their patients understood all of the implications of the surgery as part of their education process. They wanted the

patients to be better informed and to learn the specific, targeted information needed to make appropriate health decisions, so they wanted to see if the software application made a difference. The objective of this collaboration was both to improve the application and to assess data from two groups: participants who used the multimedia software application to learn about the procedure they were considering (intervention group) and participants who did not use that software program (control group). The control group learned about the surgery through the clinic's usual methods: They met with medical professionals and received written information. Interviews were conducted with both groups to see if there was a difference in the language that participants produced from pretest to posttest.

### Development process

Patients who elect to have bariatric surgery must be aware of the lifestyle changes they will need to make to avoid complications. The hope with the educational software application was that those who used it would eventually be better able to understand these lifestyle changes well enough to be able to transfer the information to their own lifestyles and reduce the potential for complications. The application was initially developed by the animation company in conjunction with a board of surgeons and nurse educators from the clinic. It was designed to target a variety of learning styles by using video, audio, text, animations, and knowledge checks.

The animation company was a small business that did not have a full-time technical communicator on staff and did not have a formal process for documentation or usability testing. They contracted me as a technical writing practitioner to do some editing on the language elements of the product before the product launched. They wanted a quick, final edit of the text in the knowledge checks, the informed consent checks (an optional feature), and the captions and labels in the application. They also wanted me to do a usability check to make sure everything was functional. As I got involved in this process, it became clear that there were other design and functionality improvements that could be made, so I suggested we do a usability test with real users to use the principles of user-centered design before doing final edits. The animation company was on a time schedule for the product launch, and all of the changes had to be approved by the board of surgeons and nurse

educators, so after my initial assessment, we decided to do a small usability test to find only the most critical issues before the first launch and to do another, more in-depth test, before the next release.

Revisions were necessary to make the application more appropriate for the targeted audience and purpose before we could begin the first round of usability testing. The initial product was designed to act as both a sales tool for promoting the company to other clinics and as a functional product for clinics that had already chosen to use it for patient education. The first change we made was to create two separate logins so the patient login would go to the functional application and the clinic login would go to a completely separate promotional site that included samples from the application and other information appropriate to the clinics. I suggested revisions to the promotional site, including changing terminology to be more appropriate for those users (primarily doctors who owned their own practices or ran a clinic) and avoiding the technical jargon of software development.

As for the application itself, in addition to basic functionality issues, I suggested labeling sections in each chapter to break the information into smaller chunks, bringing the language to a more readable level (Flesch-Kincaid) by defining terms and abbreviations, reducing the complex medical terminology, reducing the length of the sentences, changing all text to match the audio, adding captions to sections where there were none, adding white space to reduce the amount of text presented at one time, using more content-related functional visuals, including more participatory elements and knowledge checks, and making final edits for parallelism, grammar, spelling, and mechanics. Some items needed to be revised for a later release, such as re-recording the audio in one section that lasted nearly 15 minutes—the revision would break the content up into shorter segments.

For the usability test, we used a single-room, observational setup for functional (not extensive) validation testing since the product was so close to release (Rubin & Chisnell, 2008). We also included a small section for users' explicit opinions of the application. I created the objectives and a task list and moderated the tests with one of the other animation company employees who was involved in the development of the application. Once testing was complete, I wrote a report suggesting improvements



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based on the results. The employee and I also collaborated to create documentation of the entire process so it could be duplicated (and improved) for future releases and/or other applications they were working on. Six users (two males, four females) participated in the test. During the test, I initiated the tasks, observed the users completing the tasks, and took notes. The other employee provided user technical support and also observed and took notes of any technical difficulties. Tasks included starting the application, pausing the videos, adjusting the volume, replaying sections, navigating menus, participating in knowledge checks, and answering five short questions about their perceptions of the application, how easy they found it, what they liked and didn't like about it, and any suggestions for improvement.

Recommended changes included adding pop-up feedback statements (and auditory information) to notify users if they answered correctly or incorrectly, error messages when the application experienced lag-time or buffering issues and instructions to correct the issues, instructions about how to re-watch sections, subsections in each chapter, and links in the navigation so users could easily return to a specific place if they had to go back and find something in a previous section. Since the application was Web-based, the company was able to make changes and corrections quickly. When the revised version of the software was released, I began the small study to see what the differences were between participants who used the software application and those who used the clinic's traditional methods to learn about the surgical procedure.

### Methodology

The hypothesis was that the intervention group (those who used the multimedia software application) would produce "better" answers than the control group, who did not use the software. The assessment tools were created by using the content in the multimedia software application, including the knowledge check and informed consent questions that the medical professionals chose. I made sure that there were questions that targeted several types of knowledge (Marzano & Kendall, 2007). An improved or "better" answer would demonstrate the ability to recognize, recall, and use the complex medical information about bariatric surgery as evidenced by more technical terminology (vocabulary),

more clearly explained examples, and more specific details about the information related to the surgery and necessary lifestyle changes.

After IRB approval, nurses in the clinic initially recruited interested patients. If the patients expressed interest, I would then share the IRB-approved materials with them to be sure they were still interested. The clinic allowed me to conduct the testing before and after the patients' regularly scheduled appointment times. Twenty-nine participants completed this study, eighteen of whom were in the intervention group and eleven of whom were in the control group. Demographics were not controlled for—this was a small sample of current patients from the clinic who were interested in the procedure. The nurses randomly assigned the patients to the control group or the intervention group. I conducted both pre- and post-interviews in addition to multiple-choice and fill-in-the-blank assessments. Due to page limitations, this paper will look only at the interview data.

After transcribing all of the interview discourse, I developed a coding system to create a baseline for the pretest answers so I could judge the posttest answers in comparison. For the pretest, I used 0, +, and \*: 0 indicated an incorrect answer; + indicated a partially correct answer; and \* indicated a completely correct answer, according to the answers the medical professionals said they were looking for. For the posttest, I used =, +, and -, where = indicated an unchanged answer (not improved, not worse) answer, + indicated a better answer, and - indicated a worse answer. Criteria for a better answer included more concise vocabulary or technical terminology, more (quantity) or more clearly explained examples, and/or more specific details about the information related to the surgery and the necessary lifestyle changes. I then selected the questions that had the largest number of improved answers according to the above criteria and examined the language used to see if there were any indications that the software application may have mediated the learning process. The next section will discuss those findings.

### Results and Discussion

A total of 56 participants began the study, 22 in the test group and 34 in the control group. It was my hope to have 20 participants in each group complete all three pretests and posttests of the study; however, it was not possible to get 20 in each group for a variety of reasons that I had no

control over in the clinic. Participants sometimes had to leave for appointments with their doctors, for lunch, or for other reasons during testing. Out of 22 original test group participants, only 18 participants actually completed the pretest and posttest interviews. Out of 34 original participants in the control group, only 11 were able to complete the pretest and posttest interviews. Statistical analyses were computed to help account for these inequalities in sample sizes. The interview data presented here is from the participants who were able to complete both the pretest interview and the posttest interview.

First, I looked at the data by the percentage of participants that improved answers and how many questions had improved answers in the posttest. As shown in Table 1, approximately fifty-two percent (52%) of the participants in the intervention group had improved answers in the posttest. Approximately twenty-five percent (25%) of the participants in the control group had improved answers in the posttest. A two-tailed, independent samples t-test at 95% confidence interval showed statistically significant improvement in the test group over the control group ( $p < .0001$ ). Results were computed both with and without Welch's equation to correct for the slightly unequal variance (standard deviation squared).

More interesting than the numbers, however, was the language used by the participants. That is best demonstrated by some examples of informational and procedural knowledge.

### **Informational knowledge—vocabulary/definitions: *What is an anastomosis?***

Informational knowledge can occur in the form of vocabulary and definitions (Marzano & Kendall, 2007). The question that asked for knowledge of vocabulary

and a definition and showed the highest number of improved answers in the intervention group was “What is an anastomosis?” The medical professionals want the patients to understand this question because of the critical implications. An anastomosis is the connection between two organs, and in this case, that is where their “new” stomach is joined with a connection the size of a dime. All food must pass through that small connection. This requires chewing thoroughly and swallowing only small amounts of food after the procedure for the rest of their lives to avoid complications.

For this particular question in the posttest, 67% of the intervention group participants improved their answers. In the pretest, no one knew what an anastomosis was. It's not surprising that they learned what it was; it was surprising, however, that only 9% of the control group had any idea what an anastomosis was by the posttest. That difference in improvement led me to believe that the software application may have been more effective at getting the information across. Two samples of the posttest answers are shown below. The pretest answers for these were both “I don't know” (or equivalent).

- Example 1: *That's that uh, round circle they put on your other thingy, the, uh, asimosity? Or whatever it is? It's uh, couple inches down from the, soph-jes, where they do that, cut, and then on the stem they make a circle, you know what I'm talking about?*
- Example 2: *That's gonna be my little dime-size thing that my food's gonna pass through.*

In Example 1, the idea of the anastomosis is clearly contextualized by the video in the computer software application where a circle is drawn and explained in relationship to the connection of two organs (see Figure 1).

**Table 1. Statistical analysis results comparing posttest improvement in the interview answers for the test group and the control group participants**

Interview Improvement # of improved answers	TEST	CTRL	Interview Improvement % of improved answers	TEST	CTRL
N =	18	11	N =	18	11
Mean =	9.78	4.73	Mean =	51.56%	24.91%
SD =	2.02	2.10	SD =	10.63	10.89
P = less than .0001			P = less than .0001		
Significant			Significant		

## A Multidisciplinary Collaboration



**Figure 1.** Photo captured from the animated video in the section that explains anastomosis. Copyright 2009 by Medical Animatics, LLC. Reprinted with permission.

The answer in Example 2 demonstrates how the software may have given the participant the beginnings of the schema needed to understand the idea of an anastomosis in relationship to any necessary actions. Neither of the answers are perfect textbook definitions, but both participants clearly present an understanding of what the term means, which is a better answer than each of them gave in the pretest, where they did not know.

Example 1 demonstrates a preliminary understanding of the definition of the term. Example 2 demonstrates a bit more knowledge, that the food will pass through a connection the size of a dime, which will be helpful after the surgery to reduce complications caused by not understanding the size of the connection. It may not be important for the participants to remember the actual term as long as they understand the implications of the process and can explain that in plain language; however, if the medical professionals want the patients to know the particular term, it may be important to introduce the term multiple times so the patients can develop the necessary schema to remember the jargon.

These examples indicate that the software application could have acted as a mediator to help the participants understand the meaning of anastomosis enough to produce these improved answers. Again, it's not important to know everything about it at this stage. Learning doesn't happen all at once—but this gives them some information that they can continue to build on.

**Procedural knowledge: Describe your surgery to me. What exactly is the surgeon going to do?**

In addition to informational knowledge, procedural knowledge is also important, has different forms and functions, and is much more complex than informational

knowledge like definitions (Marzano & Kendall, 2007). The participants in this study needed to understand the entire procedure they were considering because of the long-term, often permanent nature of their decision, so we included the question that asked them to describe exactly what the surgeon would do. In this question, 83% of the intervention group improved their answers in the posttest, while 55% of the control group participants improved their answers. Most of the participants had at least some information about the procedure in the pretest. Again, the interesting elements can be found in the language of the intervention group. Below are two examples of both the pretest answer and the posttest answer for this question (from intervention group participants).

- Example 3 PRE: *He's gonna do a laposcopy, disconnect part of my stomach and reroute it to uh, another part.*
- Example 3 POST: *He's gonna do the laposcopy procedure, put in the sutures, put a camera in, use the clippers, cut off below the esophagus, make the stomach small, reattach it, er, cut off another part of the small intestine and reattach it to thee, stomach.*

In addition to some new vocabulary, Example 3 also produced a series of procedural steps in the correct order; and in the same order that they appeared in the software application, indicating that the intervention may have had some influence on the learning process. Another example demonstrates this as well:

- Example 4 PRE: *Well, he's going to cut part of the stomach off to make a pouch, and well, reroute it from the small and large intestines. As far as I know.*
- Example 4 POST: *Well, he's going to uh, cut part of your stomach off, and the juju, the juju, jujunum is going to be bypassed up to the anamosis, and then it's gonna go through part of it, it'll bypass your uh, dadelay, da, the "d" one, and then, uh, that's when, cause most of your nutrients are stored in the jejulium, and then the, then it goes into the ileum and then down, so it's actually goes to a, since it's smaller now, it can bypass it's the other part that goes into that to grab the nutrients it needs.*

Even though this participant could not remember exactly what some of the words were, it is clear that the meaning of the new vocabulary is being developed. Both of the improved answers demonstrate technical vocabulary and procedural information.

The participant in Example 4 struggles with technical terms: “anomososis” for anastomosis, “the ‘d’ one” for duodenum, and “juju, jujunum...jejulium” for jejunum. However, the struggle is more with the pronunciation and memory of the word itself, not with the meaning, as indicated by the last part of that answer. This indicates that the participant is “actively engaged” in the reception of the content (Bellwoar, 2012, p. 325). The participant’s description of what happens is accurate, the procedural information from the video was produced in order, and more specific details were produced in the posttest.

## Conclusion

Participants in this study who used the multimedia software application to learn about their procedure were able to more consistently produce better answers about their surgery and the pre- and post-surgical lifestyle requirements than those in the control group. A better answer consisted of recognizing and recalling more informational and procedural knowledge by producing better definitions, examples, vocabulary, and more specific details in the posttest answers.

The implications of these findings could indicate that collaborations that improve educational materials may be beneficial for use in patient education and informed consent, and that the targeted improvement in the training materials may have helped mediate the complex information so the participants were better able to demonstrate what they are in the process of learning. In addition, these results can help inform the technical communication curriculum.

By partnering with industry to create classroom projects with engaging content and current issues in the field, students may better learn how to apply rhetorical strategies to workplace contexts. In addition, using this type of experiential learning content in the classroom could help students consider layered literacies (Cargile Cook, 2002) in authentic settings. Showing students examples of how these types of collaborations can work may help them begin to develop more basic and rhetorical literacies as they see what types of choices were made and why, social literacies as they analyze the successful elements of the teamwork and collaboration, technological literacies as they analyze how the users were able to work with and learn from the technology and critique how the design could have been further improved, and ethical and critical literacies as they analyze

choices made and possible improvements for reducing possible social and technological barriers for users.

Because of the very small size and scope of the study, much more work would need to be done to confirm and generalize the results. Any patient education materials that will be used with the hope of teaching patients enough to help them with decisions about their health care options must be designed and tested to ensure that they are going to be readable, usable, and understood. Ideally, an iterative testing methodology should be implemented early in the development process to ensure user-centered design.

Although this was a small study of only one researcher’s interdisciplinary collaboration, it shows that it is possible for academic researchers and practicing professionals in technical communication to inform the patient education process by collaborating with medical and technical partners to create better educational materials and assessments. Similar collaborations could be implemented in other disciplines as well.

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Jackie Damrau, Editor

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## The Problem with Education Technology (Hint: It's Not the Technology)

Ben Fink and Robin Brown. 2016. Boulder, CO: Utah State University Press. [ISBN 978-1-60732-446-1. 46 pages. USD\$6.99 (softcover).]



Fink and Brown's thin volume is written so well that reading it a second time is as interesting and engaging as the first. With lines like, "What is a 'paper,' exactly? Just like pornography: you know it when you see it," who would stop? (p. 24).

While their text touches on multiple topics at the intersection of writing

and technology, the volume's emphasis centers on Automatic Essay Scoring (AES). Fortunately, the authors do not focus just on the artificial nature of AES grading—they move past that and land on the artificial nature of many writing assignments as well as human-based scoring approaches—particularly as they manifest in high-stakes tests like the GRE and SAT.

Their core argument has several pieces. Primarily, machines cannot read and evaluate like experts; instead, the systems only find the signifiers or variables that they are told experts seek as indicators of writing capacity and ability. This claim gains power when the authors hone in on the Education Technology Services (ETS) raters take by focusing on the essay's form rather than their claims or arguments. This is done with human raters, the authors point out, and that is key to the problem of AES and automation. "The problem with the machine isn't about the machine. It's about how humans (in this case, standardized test raters) got turned into machines. And how these mechanized humans became accepted as the 'experts' for the machines to (easily) emulate" (p. 12).

The text is accessible, friendly, and familiar—especially for writers or writing teachers. It floats lightly and deftly. Unfortunately, the authors employ a straw man: Massive Open Online Courses (MOOCs). Discussing mostly the profit and student extraction aspects of MOOCs and the role that AES has in them offers a limited view. Sadly, they overlook writing which takes place in MOOCs: forums, messaging, and social media. This writing is neither easy to track or evaluate; pretending that this real writing for real audiences does not emerge in many MOOCs is problematic. Equally problematic is ignoring MOOCs like #clMOOC where

goals are explicitly around professional development and multimedia authoring; lifelong learning, not the degree, drive those MOOCs. MOOCs are not the enemy. The desire to extract profit and capitalize on every possible interaction with students should remain the authors' target. Automatic grading enables such extraction and increases profits for academic administrations and the EdTech companies they hire.

*The Problem with Education Technology* ends with hope. It centers on the importance of organizing with groups beyond writing teachers. The goal is to limit the juggernaut of high stakes testing—a powerful force that is helping fund, in terms of political clout, time, and money—a juggernaut that is increasingly reliant upon the automatic grading (by humans or computers) of writing which should be, in stark contrast, thoughtful, powerful, engaging, and not limited to a select set of structural and rhetorical moves.

### Gregory Zobel

Gregory Zobel is an assistant professor of Educational Technology at Western Oregon University.

## FrameMaker – Creating and Publishing Content

Matt R. Sullivan. 2015. San Juan Capistrano, CA: Tech Comm Tools. [ISBN 978-0-9967157-9-9. 592 pages, including index. USD\$49.99 (softcover).]



Being a bit selfish, I picked this book to review as I don't have a reference book at home on FrameMaker and have thought at times it would be nice to have one. This points out that the book has a market as I am part of that market. Plus, while not minding to brush up on FrameMaker by

Googling videos and online text, I have thought it would be good to have a reference book on paper, too.

With an impressive scope and weighing in at what feels like at least a pound, *FrameMaker – Creating and Publishing Content* should prove to be the reference I have wanted.

New users can be one audience for the book as can be more experienced users who want a reference.

Sullivan addresses newer technologies like Kindle, EPUB, and HTML5, and the FrameMaker options for handling multi-channel outputs. My interest so far is in more traditional uses for FrameMaker, yet it is good to have these options covered, too.

The section on working with a table of contents proved especially helpful and informative. Since I do not work with FrameMaker on a daily basis, when I do use it, having this reference even on the basics of a table of contents makes it worth owning. A good example of the kinds of tips offered include working with a table of contents is, “If you have *two* TOC reference page entries in the file, FrameMaker uses the one it finds first. If you update the book but do not see an updated TOC, check the reference pages for an extra TOC text frame” (p. 349).

### Jeanette Evans

Jeanette Evans is an STC Associate Fellow and active in the NEO community, currently serving on the newsletter committee. She holds an MS in technical communication management from Mercer University. Jeanette has published an article, “Emerging Technologies: Where We Have Been and Where We Are Going” in STC’s Intercom magazine.

## Revitalising Audience Research: Innovations in European Audience Research

Frauke Zeller, Cristina Ponte, and Brian O'Neill, eds. 2015. New York, NY: Routledge. [ISBN 978-1-138-78737-7. 294 pages, including index. US\$145.00.]



This is the fifth book in the Routledge Studies in European Communication Research and Education series. Like the other four, its many authors hail from a number of countries, but all write in English. *Revitalising Audience Research: Innovations in European Audience Research* presents reports on 20 studies about various aspects of

audience research, each written by the study authors themselves. The final chapter by one of the book’s editors, Frauke Zeller, offers a critical perspective on big data in audience research.

The topics cover a variety of narrowly focused projects, from ethnographic research into online gamers’ behavior in the game and in real life, to the reasoning of

young people who are not using social networking sites, to a linguistic perspective on how group identities are constructed in online discussions. Some of the research seems a bit dated, such as a project about Second Life, an online role playing game my now-adult son played in middle school, or one that explored Finland’s move to digital-only television—a change now replicated in a number of countries, including the US.

As one might expect from such a variety of authors, the writing ranges from relatively accessible to lay people to difficult to understand for those outside the narrow specialization covered by the particular chapter. The book is marketed as a text book. Its intended audience is therefore likely more familiar with audience research as a specific field of inquiry than I (a media studies major who focused on how news is presented, not how the reader perceives it) am.

Frankly, I needed to read subtitles such as “The Use of Q Methodology to Fuse Quantitative and Qualitative Approaches for Increased Explanatory Power in Comparative Research” more than once before I knew what the subject of that chapter was. In case you are interested, Q methodology is a research method for assessing a person’s viewpoint, and the authors combined interviews with having interviewees sort standardized cards onto a grid and then mathematically analyzed the outcome of that task. They did this with people in Flanders, Belgium, and Denmark to explain how news is consumed in these two areas of Europe.

If you are a student or professor in audience research or a closely related field, you may find *Revitalising Audience Research* helpful. If you are not, it may prove a bit overwhelming, and probably not all that useful.

### Barbara Jungwirth

Barbara Jungwirth owns reliable translations llc ([www.reliable-translations.com](http://www.reliable-translations.com)), where she translates technical documents from German into English. She was previously a technical writer and IT manager and currently serves on the board of STC’s New York Metro chapter. Barbara writes a blog (On Language and Translation) and tweets (@reliabletran).

## The Cybrarian's Web 2: An A–Z Guide to FREE Social Media Tools, Apps, and Other Resources

Cheryl Ann Peltier-Davis. 2015. Medford, NJ: Information Today, Inc. [ISBN 978-1-57387-512-7. 354 pages, including index. USD\$49.50 (softcover).]



*The Cybrarian's Web 2: An A–Z Guide to Free FREE Social Media Tools, Apps, and Other Resources*, a follow-up to *The Cybrarian's Web* (2012), is a handy guide to social media tools, apps, and other resources that belongs on every librarian's bookshelf.

Librarians can use this guide to make the best use of social media tools,

expand services for their patrons, and better market those services to the public. The wide range of resources described makes it appropriate for all types of libraries and even non-library environments.

The 61 chapters are arranged alphabetically by resource name with each chapter containing an overview, list of features, and a description of how cybrarians can use the resource. Many chapters also feature For Your Information (FYIs) that highlight useful information tidbits.

The average reader may be familiar with some of the resources, which include eBooks, cloud storage/file hosting/sharing, photo/video sharing, and Microsoft Office Online. The library's expanding role in the 21<sup>st</sup> century is reflected in resources such as Makerspaces and Self-Publishing Platforms. Other tools such as augmented reality/wearable technology and Quick Response (QR) code scanners/generators use the latest advances in information technology.

*The Cybrarian's Web 2* also contains several useful appendices. Appendix IV gives access to the tools by service type. Other appendices contain tips for keeping up with emerging technologies, a glossary of resources, referenced websites, and tool availability by mobile device. The excellent index also assists the reader in finding desired information.

This book is easy to use and clearly written. Though it would be impossible to outline every tool and resource available, the wide range highlighted here offers something to nearly everyone. I would recommend it to all information professionals in a variety of settings, both for work and personal use.

## Jennifer Spanier

Jennifer Spanier has been a freelance book and database indexer since 2009 and is an active member of the American Society for Indexing. Previously she has worked as a biologist and a public librarian and indexes in a wide variety of subject areas.

## Rethinking Post-Communist Rhetoric: Perspectives on Rhetoric, Writing, and Professional Communication in Post-Soviet Spaces

Pavel Zemliansky and Kirk St.Amant, eds. 2016. Lanham, MD: Lexington Books. [ISBN 978-1-4985-2337-0. 238 pages, including index. US\$90.00.]



We are familiar with the economic and political differences between the Union of Soviet Socialist Republics (USSR) and the West. But, how different are these theories after the break up of the Soviet Bloc with these states moving toward a more Western approach? Do those differences exist in education,

specifically how students are taught to write?

Zemliansky and St.Amant's collection, *Rethinking Post-Communist Rhetoric: Perspectives on Rhetoric, Writing, and Professional Communication in Post-Soviet Spaces*, attempts to answer that question. The editors' Introduction provides an overview for the essays by telling us that there are four contexts discussed in the essays: classroom, where people work, teaching in global contexts, and using different media. Likewise, the essays cover three areas: rhetoric, writing, and communications. So, the target audience includes researchers, teachers, and students

In 10 essays, the authors address these topics: writing instruction in Russia and Ukraine (Essay 1); a writing center at a Moscow university (2); the current state of technical communication education in Russia (3); Russian education and the global community (4); technical communication rhetoric in Europe and the USA (5); documentation requirements in Russia and the USA (6); technical communication programs in the former German Deutsche Demokratische Republik (GDR) (7); Serbia and the Bologna Process (a set of reforms to standardize European higher education) (8);



cross-cultural collaboration in the Ukraine (9); and social media use in Russia (10).

While the collection will appeal to educators, professional technical communicators can find useful information, especially if they specialize in localization or their organizations regularly deal with post-Soviet countries. The more that we understand about the culture and environments of these countries, the better able we will be to communicate effectively with them. In this case, understanding how our users have learned to communicate in writing, the more effective will be our communications. For communication teachers who have international students in their classes from these countries, knowing how they were trained can ease the transition between rhetoric as practiced in the post-Soviet countries and as practiced in the West.

My major disappointment in these essays is that none, even in the Introduction, address the contributions of INTECOM, an organization of technical communication organizations, and especially the work done by the German society tekomp (other than in Essay 7). INTECOM's work in the late 1990s and early 2000s did much to influence the way technical communication works worldwide. Through symposia such as FORUM and the panel discussions with Russian and Chinese writers, member societies were able to help spread the way writing was practiced and taught in the West.

In the concluding paragraph of their introduction, the editors suggest a path forward for the readers. Had they offered their own conclusions in an ending essay (an 11<sup>th</sup> essay), the collection would offer a significant starting point for teachers and students.

In spite of my reservations, however, I would recommend this collection for libraries and advanced classes in rhetorical and cross-cultural pedagogy.

### Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

## Graphic Design Visionaries

Caroline Roberts. 2015. London, England: Laurence King Publishing. [ISBN 978-1-78067-484-1. 312 pages, including index. US\$40.00 (softcover).]



*Graphic Design Visionaries* is a fantastic accompaniment to any required graphic design history text. This book features 75 designers/design teams and is organized by date of birth, instead of alphabetically as one might expect. This gives the text the sense of being chronological, but as any history

text it is difficult to maintain since many events, or in this case people, overlap one another. Each designer or design team is highlighted in two, two-page spreads (for a total of four pages) that includes a brief biography and background information on the designer/s as well as multiple examples of their work and a timeline of significant events in the designers' careers. The dates of the designers covered in the text range from those active in the early 1900s to current designers.

Roberts addresses the concern of an established canon of graphic designers in the introduction, explaining that this is a starting point and therefore is "very much on the established canon" (p. 7). She goes on to explain the narrow field of graphic design participants historically, thus forcing this demographic. However, Roberts expresses hope for the future by conveying the rise in women who are enrolled in graphic design schools specifically, and she goes on to express hope for wider demographics in future editions.

Despite Roberts' admission, you sense that she is trying to move beyond the canon, with the inclusion of not-often referenced designers from Brazil, Japan, and Spain. *Graphic Design Visionaries* also starts the expansion on the current canon of graphic design by giving the same amount of space for images and copy to all the designers in the book. She also expands the canon by including designers such as Lora Lamm who was "one of a number of Swiss designers to flock to Milan . . . but unlike such contemporaries as Max Huber, Walter Ballmer and Carlo Vivarelli, Lamm was somehow written out of the canon of design history" (p. 161).

The examples shown from each designer are another refreshing item in *Graphic Design Visionaries*. Many images shown are varied from the typical images that are shown in standard textbooks. While Roberts has

carefully chosen accompanying images that are not often used in principal texts, such as some iconic designs that may have helped established the designer in terms of style or notoriety, those in the field can understand why these cannot be left out because they are historically significant in the designers' careers.

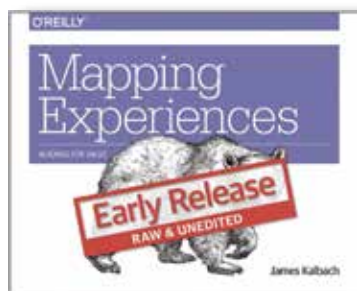
It is understandable that it is impossible for any general history textbook to include all information on a subject; they must include a range of subjects from people, events and technology. Therefore, there are ways to complement the designers' content to gain a broader understanding of history. Including *Graphic Design Visionaries* as a supplement is a must to understand the lives and careers of influential designers in the history of graphic design.

#### Amanda Horton

Amanda Horton holds an MFA in Design and currently teaches graduate and undergraduate courses at the University of Central Oklahoma in the areas of design technology, design studio and history of graphic design. She serves as a book reviewer for *Technical Communication*.

## Mapping Experiences: A Guide to Creating Value through Journeys, Blueprints, and Diagrams

James Kalbach. 2016. Sebastopol, CA: O'Reilly Media. [ISBN 978-1-4919-2353-9. 362 pages, including index. US\$34.99 (softcover).]



*Mapping Experiences: A Guide to Creating Value through Journeys, Blueprints, and Diagrams* explores a little-understood topic within user experience (UX): how to create usable, useful maps

that entire organizations can use to align their goals with their customers' experiences. A journey map has long been a tool of the trade in UX. Organizations frequently use them to depict a customer's journey from first discovering their brand to making a purchase. Mapping the buying experience helps the organization identify problems in the customer journey.

In *Mapping Experiences*, Kalbach takes this approach to a new level by introducing a method for mapping all the experiences an organization creates, from the point of view of both internal stakeholders and customers. For Kalbach, mapping experiences in a holistic fashion helps alleviate "transitional volatility," or the inconsistency customers experience across various touchpoints (p. 21). Such maps can "provide a systematic overview of the experiences you create" (p. 20). Furthermore, "By fostering conversations across the organization, the process of mapping helps avoid negative transitional volatility and promote coherency" (p. 20).

The main method for mapping experiences that Kalbach introduces that is new to the conversation is what he calls an "alignment diagram," or "any map, diagram, or visualization that reveals both sides of value creation in a single overview" (p. 4). This is Kalbach's attempt to systematize what has long been a haphazard UX process: diagramming how business goals and user goals meet, or fail to. By focusing on the concept of alignment, Kalbach ingeniously pushes the conversation toward aligning the values that companies create with the values that their customers create.

*Mapping Experiences* is a how-to guide for everything map-related, but it is also an approach that goes beyond the simple journey map. After introducing the concept of mapping experiences in Chapters 1–3, Kalbach provides a robust process for developing various elements of maps, including choosing an overall orientation for the map, conducting research, illustrating, aligning values, and thinking about future experiences (Chapters 4–8). He closes the book with a deeper dive into four specific types of maps: service blueprints, customer journey maps, experience maps, mental model maps, and models for entire ecosystems (Chapters 9–12).

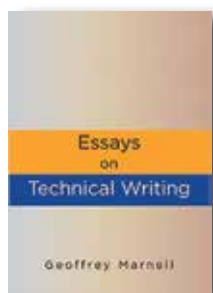
A great book for novices and seasoned mappers alike, *Mapping Experiences* is for anyone who has ever struggled to depict a complex process or system from a single viewpoint. It is loaded with valuable advice on everything from point-of-view to visual specificity and represents a definite step forward in the evolution of mapping as a useful method for improving user experiences.

#### Guiseppe Getto

Guiseppe Getto is a faculty member at East Carolina University. He is also President and Co-Founder of Content Garden, Inc., a digital marketing and UX consulting firm.

## Essays on Technical Writing

Geoffrey Marnell. 2016. Brighton, Victoria, Australia: Burdock Books. [ISBN 978-0-994-36667-2. 256 pages, including index. US\$19.99 (softcover).]



*Essays on Technical Writing* is a collection of papers and articles previously written by Marnell and now collected in one place. As the name suggests, this book gives discussions and musings on a number of different technical writing topics. Some essays, such as “Chapter 10: A Lament for the

Vanishing Index,” seem to be more like lengthy discussions on a topic that might be of interest to those new to the field of technical writing. Other essays, such as “Chapter 13: Font Choice and Waste,” could be helpful practical advice for new technical writers. This book could also be a great tool for fostering discussion in an introductory-level technical writing class, as it covers a wide range of topics from the name of the field (technical writing) to writing for international readers. The essays listed could be great starting places for students to learn that there is more to technical writing than just editing or writing manuals.

The book has a nicely detailed index, which could certainly be useful in determining where to look for concepts not listed in the table of contents. One feature that the book currently lacks is an Introduction, leaving the reader to figure out through textual cues that this is, in fact, a book of somewhat unrelated essays by the same author that were previously published in other locations. It would seem that letting readers know what they were about to encounter would be helpful to ensure that readers would understand that there is no new work from Marnell in this book.

Overall, the book, while not being overly technical in nature, could be a good starting point for people looking to learn more about what actually goes on in technical writing. It could also be helpful in explaining some of the nuances of the field that technical writers might not often think about.

### Laura Dumin

Laura Dumin has been teaching in technical writing for over 10 years and is an Assistant Professor and the Director of Technical Writing at the University of Central Oklahoma.

## Critical and Creative Thinking: A Brief Guide for Teachers

Robert DiYanni. 2016. Malden, MA: John Wiley & Sons, Inc. [ISBN 978-1-118-95537-6. 264 pages, including index. US\$69.95.]



Although, as the title states, this book is directed toward teachers, while I was reading it, I kept thinking that this is too narrow an audience. Anyone who wants to challenge their brains to engage in “whole-minded thinking to generate new ideas” (p. xi) will benefit from Robert DiYanni’s *Critical and Creative Thinking: A Brief*

*Guide for Teachers*. In it, he imparts general guidelines and specific techniques for developing critical and creative capacities.

DiYanni’s premise is that critical thinking, while valuable, is not enough to generate and evaluate new ideas. Creative thinking combined with critical thinking is what “eliminates bad thinking habits” and leads to thinking well. He supplements his own writing on this topic with examples from “a wide range of sources” (p. xii). *Critical and Creative Thinking* “explains a set of approaches and offers a series of opportunities to think about a wide range of issues and topics” (p. xi). The book is, to a large extent, a survey of other books that enlarge on these approaches and opportunities.

Essential concepts of critical and creative thinking are the subject of Part One. Each type of thinking is dissected separately to identify what is involved. To think critically, one must purposefully analyze, evaluate, apply knowledge, reflect, and so on. Creative thinking, on the other hand, is imaginative, seeking alternatives, shifting focus, and maintaining curiosity, among other elements. An important feature of *Critical and Creative Thinking* appears at the end of each chapter: practice questions that provide a thorough review and further probing of the issues addressed. They are intended not only for the reader but also for students in the case of a reader who is a teacher.

Part Two looks at other ways in which critical thinking and creative thinking are practiced. DiYanni goes into detail about language and thought before looking again at ways of practicing creative thinking and strategies for critical thinking, as well as at guidelines for generating ideas. He finds examples to illustrate

his points in surprising (and interesting) places, from hot-dog eating contests to *Sister Act*. In Part Three, applications of critical and creative thinking extend to making decisions and ethical choices. A brief discussion of ethics and technology, including privacy, ownership of digital information, and dating websites, seems timely and may especially interest students of those who use this book for teaching. It could have been discussed in more depth.

The ideas in *Critical and Creative Thinking* are not groundbreaking, especially if you already agree with DiYanni's premise. Some of it is repetitive. But it is a thought-provoking book in many ways and provides noteworthy examples of ways in which people have applied thinking techniques to come up with solutions to problems. The bibliography of source material is also valuable. As a footnote, there is a companion website, and DiYanni offers lesson plans through this online resource.

### Linda Davis

Linda M. Davis is an independent communications practitioner in the Los Angeles area. She holds an MA in Communication Management and has specialized in strategic communication planning, publication management, writing, and editing for more than 25 years.

## Routledge Handbook of Public Communication of Science and Technology

Massimiano Bucchi and Brian Trench, eds. 2014. 2<sup>nd</sup> ed. New York, NY: Routledge. [ISBN 978-0-415-83461-2. 258 pages, including index. US\$215.]

## The Routledge Handbook of Environment and Communication

Anders Hansen and Robert Cox, eds. 2015. New York, NY: Routledge. [ISBN 978-0-415-70435-9. 434 pages, including index. US \$278.]



*Routledge Handbook of Public Communication of Science and Technology, Second Edition* is a superb collection of

articles covering contemporary issues in science communication. The book's theme is society's relationship with science and the many factors that influence and complicate this relationship. The collection emphasizes such contemporary issues as publics and their understanding of and participation in science; the roles of science and scientists in public policy; the popularization of science; communicating risk, trust, and uncertainty in science and technology; the changing landscape of science and science communication in a digitized world; and issues of globalization and science communication. The authors include special chapters on health, social science, and environmentalism. Even though this is an edited collection of articles from 22 different authors, there is uniformity among the chapters making the reading easy to follow. Each chapter addresses the history, current state, and controversies of an issue related to communicating science and technology followed by deliberations on its future. Discussion questions finalize each chapter.

Similarly, *The Routledge Handbook of Environment and Communication* is a collection of works devoted to the environment, one of the top critical global concerns today. This book is a multidisciplinary and international assembly of works that explore, theorize, and examine core concepts in environment and communication that "can help, not only to understand the centrality of communication processes and communications media in the public sphere, but political definition, elaboration and contestation of environmental issues and problems" (p. 1). Divided into five parts, the authors cover historical aspects of the field, producing environmental communication, coverage of the environment through news and entertainment media, social and political implications of environmental communication, and the future of environmental communication. Subcategories within each part of the book, along with uniformity and consistent length of the chapters, makes the collection cohesive. One strength is the book's breadth of content, as there is something for any reader intrigued by this topic.

Each book can stand on its own as a reputable scholarly work intended for scientists, science communicators, and practitioners (for example, government employees), educators, and students in environmental, science, and communication programs; however, the two books actually complement each other. For instance, some topics are the same or similar,



and reading both books gives readers a more diverse, comprehensive understanding of a topic. Climate change is just one example. In *Public Communication of Science and Technology*, Nisbet discusses some reasons Americans disagree about the science and proposed solutions regarding climate change. Interestingly, research showed that science is not the root of disagreement—but social and political identities are major factors in how individuals view climate change. Along those same lines, Miller and Dinan in *The Handbook of Environment and Communication* discuss various perspectives on climate change, including the contrarian view that basically denies climate change and/or its contributing factors. The historical look at the manufacture of the contrarian view gives readers a corporate perspective that could very well inform their social identity and political loyalties. Additional chapters in each book also address issues associated with climate change that widen readers' understanding of the contention behind this issue.

Science's popularization is another theme that runs through both books. In *The Handbook of Environment and Communication*, Dunwoody offered a brief history of the tense relationship between the scientific community as a whole and scientists who publically communicate their work and cooperate with journalists. This relationship had and continues to have an impact on public understanding and views of science, scientists, the environment, and more. Likewise, in *Public Communication of Science and Technology*, there are several chapters that address the popularization of science in society, such as the evolution of science books (Bell & Turney); the making of science celebrities like Stephen Hawking, Carl Sagan, and Richard Dawkins (interestingly, not many women make it into this category) (Fahy & Lewenstein); and science, scientists, and scientific research in popular films today (Kirby).

Other common themes include public perception and participation in environmental issues in science and technology, the media's role in reporting on the environment and topics in science and technology, changes in environmental and science journalism due to advances in communication technology, and impacts of globalization on communication of the environment, science, and technology. While some overlap exists on these issues in both books, there is enough difference in content, article focus, and perspectives on the issues to make these books highly complementary to each other.

The one issue that bothered me, however, as I read these books is the intended audience. Both books are scholarly collections that will reach professionals, educators, and probably graduate students (the price may prohibit these books for many students) in science and communication programs; however, they are not written for public consumption—one of the very issues that was addressed by several authors in both books. It seems counter-productive to compile books on the communication of critical issues in our contemporary society and gear those books to only a select, educated audience. Obviously, the books are available to anyone, but the writing is accessible mostly to people who are highly educated and work in the fields of environment, science, and technology. It is a shame that such good information is not offered in a more publicly accessible format, which would assist in the general public understanding how environmental and scientific issues are communicated to us.

#### Diane Martinez

Diane Martinez is an assistant professor of professional and technical communication at Western Carolina University. She previously worked as a technical writer in engineering, an online writing instructor, and an online writing center specialist. She has been with STC since 2005.

### The Accidental Taxonomist

Heather Hedden. 2016. 2<sup>nd</sup> ed. Medford, NJ: Information Today, Inc. [ISBN 978-1-57387-528-8. 464 pages, including index. US\$39.50 (softcover).]



In his foreword to this meaty text, Joseph Busch describes *The Accidental Taxonomist* as “an excellent primer” (p. xiii). Hedden has provided here a text that is both practical and useful, and substantial. Many technical writers and other professionals find ourselves working in the “information science” field even though we never studied such. Here’s the missing reference.

As an indexer, I am familiar with much of what Hedden covers. The first four chapters (“What Are Taxonomies?,” “Who Are Taxonomists?,” “Creating Terms,” and “Creating Relationships”) are quick reads and review for me, but they are thorough and much



appreciated. Chapter 5, “Software for Taxonomy Creation and Management,” covers the various types of software options available for creating and managing taxonomies. The taxonomy field has changed a lot since Hedden’s first edition. Thus, she covers here software not designed for creating taxonomies (such as Excel and FreeMind), dedicated taxonomy management software, single-user software (such as MultiTes), and multi-user software (such as Data Harmony). Hedden also reviews free and open source software and software with taxonomy management components.

Hedden says that one of the main purposes of a taxonomy is support of indexing as well as support of information retrieval, organization, and navigation. Chapter 6, “Taxonomies for Human Indexing,” is of keen interest to me as I anticipate indexing with a formal taxonomy, which is exactly what she covers therein. Hedden’s coverage of taxonomy structures and indexing interfaces is useful. I especially appreciate her attention to quality control.

I also found interesting her coverage of folksonomies, taxonomies created by authors or users, and her coverage of social tagging. In this age of metatags and hashtags, many of us have to incorporate input from “general folk,” and her suggestions are helpful.

Hedden also covers taxonomies for automated indexing, which includes facets, information architecture, and other aspects of interest for commercial applications. Her summary of the differences between taxonomies for human versus automated indexing is helpful. She covers additional practical applications in chapters on displays, planning, design, and implementation.

The last chapter, “Taxonomy Work and the Profession,” may be of keen interest to many, especially those in transition. I like Hedden’s honest description of taxonomy work: “The heart of being a taxonomist is dealing with concepts . . . It is neither entirely technical/mathematical nor entirely linguistic” (p. 383). In 2015, Hedden conducted a survey of self-described taxonomists from various online groups. She asked them what they enjoy and what they find challenging. The answers are telling, especially for those considering entering the field. The full survey is provided in Appendix A, and selections from the comments are included in Chapter 2. The appendices also include a detailed Glossary, Recommended Reading, and websites.

Hedden often describes herself as “long-winded” (personal email correspondence, and, most recently, at

the ASI annual conference, June 18, 2016). I beg to differ. She has much to say, and it’s all good.

### Pilar Wyman

Pilar Wyman, Chief Indexer at Wyman Indexing, has been writing indexes for over 25 years. She is a former STC member and current member of the American Society of Indexers (ASI). Pilar works in English, Spanish, and French in public health, clinical medicine, med-tech, and other areas of personal interest.

## Restricted Access: Media, Disability, and the Politics of Participation

Elizabeth Ellcessor. 2016. New York, NY: New York University Press. [ISBN 978-1-4798-5343-4. 252 pages, including index. US\$28.00 (softcover).]



As an academic who researches cultural and medical communication, who is involved with various disability groups around campus and in my community, and who is the parent of a child with multiple disabilities, I know more than the average person about disability law and accommodations. Because I am

intimately familiar with many of the issues that people with disabilities face when they engage with the technologies necessary for daily life, I was keen to read Elizabeth Ellcessor’s book *Restricted Access: Media, Disability, and the Politics of Participation*.

*Restricted Access* provides a detailed examination of the design and implementation of communication technologies from the perspective of a person with disabilities. Ellcessor neatly avoids the both the “medical gaze” that reduces a person with disabilities to their conditions, as well as the abled bias of viewing people without disabilities as the “default” user of the technologies. She accomplishes this through extensive interviews with people with disabilities, as well as with stakeholders working in communications, academia, software development, and government agencies (p. 14).

The main method Ellcessor used to dissect the design, or redesign, and use of technologies for people with disabilities was accomplished through “An Interrogatory Kit for the Study of Access,” designed by the author (p. 19). This “kit” contains five major

tools, or themes, for analysis: regulation, form, use, content, and experience. Each chapter following the introduction develops one of these themes in detail. Although Ellcessor described why she chose the trope of the “kit” to describe her methods, and the comparison of her methods to a common schema might make her ideas more palatable to a less research-inclined audience, I found the wording off-putting because it seemed condescending to an academic audience who is familiar with these types of analyses. However, once I got past the extensive discussion of the semantics, which even went so far as to include a photograph of a more practical “kit” (p. 20), I found the author’s framework pragmatic and easy to apply.

The book’s greatest strength is the author’s knowledge and attention to detail. Ellcessor is well versed in disability law and on the major legislation that defines “equal access” for people with disabilities as well as pending legislation that could lead to further changes in disability law. Her depth of knowledge in communications and legal issues provides a rare insight into how the law has shaped the legal and ethical guidelines surrounding the design and modifications of technology for people with disabilities.

*Restricted Access* lived up to the heady expectations promised by its name. Ellcessor’s depth of knowledge, the breadth of her research, and the painstaking detail with which she articulates her points makes this book a must read for academics, as well as technical communicators working in the health, software fields, or Web publishing fields. This is a book that I know I will repeatedly reference, both for my own research as well as for my practical work at the university and in the community.

### Nicole St. Germaine-Dilts

Nicole St. Germaine is an Assistant Professor in the Technical and Business Writing Program at Angelo State University, as well as a freelance writer and consultant. Her research interests include technical communication for a Mexican-American audience and technical communication in the health fields.

## Experience Required: How to become a UX leader regardless of your role

Robert Hoekman, Jr. 2016. Berkeley, CA: New Riders. [ISBN 978-0-13-439827-3. 210 pages, including index. US\$29.99 (softcover).]



Knowing what user experience (UX) entails is only half the battle. That is, if you can really pinpoint a definition of what UX is. As Hoekman says, “‘UX design’ means everything and nothing” (p. 17). This is the journey he takes the readers on in *Experience Required: How to become a UX leader regardless of your role*. Hoekman begins

by dispelling much of what you might think or know about UX; how it has come to be and where it originated from, the path to get there, and how to remain on top. From starting the readers off with some definitions and terms, such as wanting to be a “Unicorn” (p. 18), to what it really takes to move out of a role of simply falling in line and taking orders, to becoming a leader and directing a team, this is the definitive how-to guide.

For example, some of what Hoekman tells the readers, through several anecdotes, is that to be a successful leader, “you have to be able to accept criticism with grace” (p. 149), not “ignore the team. [But] put them to use” (p. 152), and to “master the art of learning” (p. 177).

With countless years of experience as a veteran UX strategy consultant and hundreds of articles written on the topic, Hoekman uses his own expert knowledge coupled with input from other experts in the field to round out a narrative that takes its user from the ground floor on up. He explains the way that things in the UX field are done, how they can be done better, and more specifically, how the readers can use this knowledge to better themselves as UX designers, and as a UX leader. Hoekman writes this book with several audiences in mind, and notes that designers, students, instructors, and more can all benefit.

After moving through the definitions and familiarizing the audience with the UX world, Hoekman tailors his chapters to specific qualities and skills that are necessary to understand in becoming a UX leader, such as communicating, leading, and learning. He gives examples of his own personal experiences learning these skills, and instances many readers may have experienced as well in their careers.

At the end, Hoekman leaves us with this message: “You can design your role. Your skill set. Your communication. How people react to you. How you react to situations, to people, to constraints, to changes. You get what you design for. Design to lead” (p. 201).

### Jack Labriola

Jack T. Labriola is an STC student member of the Texas Tech University chapter and a Ph.D. student pursuing a technical communication and rhetoric degree. His research interests focus on UX design, usability, social media, and content strategy.

## Literacy in Practice: Writing in Private, Public, and Working Lives

Patrick Thomas and Pamela Takayoshi, eds. 2016. New York, NY: Routledge. [ISBN 978-1-138-95120-4. 262 pages, including index. US\$160.00.]



The rapid growth of powerful new communication technologies in the early 21st century has broadened the definition of literacy and given rise to a scholarly interest in the relationship between individuals' literacy practices and their larger social and cultural contexts. In *Literacy in Practice: Writing in Private, Public, and*

*Working Lives*, the editors give us 16 essays on professors' qualitative research in the New Literacy Studies field. With small sample sizes—four of the essays focus on only a single subject—these chapters provide what feel like intimate portraits of people negotiating the communication demands of their complex worlds.

This compilation finds particular value in its diversity. The editors do well in representing a variety of ages, ethnicities, occupations, and situations. They also expand the concept of literacy beyond traditional notions of reading and writing to embrace texting, social media, workplace procedures, and even body language.

Although Thomas and Takayoshi's introduction sets a decidedly academic tone, the direct language the essay authors use affords the reader a vivid, engaging image of each scenario. One study looks at how teens' choices of audience impact their behavior in the language arts classroom. Of the half-dozen ninth-graders depicted in detail, one is Ivan, whose disengagement in the class discourse signifies his gang affiliation. Another

chapter follows a college sophomore's thought process as she establishes a LinkedIn profile and discerns the differences in audience and tone between that website and Facebook. Yet another study gives us an English Composition professor's think-aloud—profanities and all—as she grades final exams with a headache.

Readers seeking a more technical examination of emerging literacy forms will appreciate the analysis of digital African American Language (DAAL), an amalgamation of African American Language and Digital Language. With no fewer than seven tables charting DAAL's phonological and grammatical features, this article presents the patterns observed in 200 text messages and traces the language development that naturally occurs when a new technology makes the merging of multiple languages logical and expeditious.

Two additional studies expose sophisticated literacy practices in unexpected places. One researcher shows how technological innovations are increasing the amount of reading and writing involved in the daily operations of an automotive repair shop and therefore blurring the traditional line between manual and knowledge-based labor. From Mumbai comes a description of the workday routine of 18 Dabbawalas who, although often labeled illiterate because they lack formal education, are instead adept at a complex written and oral communication system that enables their business to thrive.

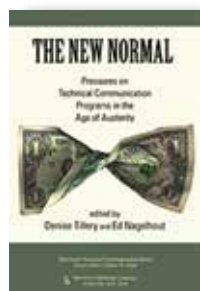
The relationship between literacy and empowerment is also powerfully evident in the account of a woman with multiple sclerosis who leverages her online presence to grow personally, socially, and professionally. Throughout this collection, the reader sees the editors' point about the value of studying how people use literacy. These subjects are easy to visualize and bring to life how literacy practices impact the individual and how each individual's literacy choices contribute to the evolution of culture in the 21st century.

### Laurie Shirley Esposito

Laurie Shirley Esposito is a seasoned high school English teacher with instructional experience at all academic levels. She has also worked in publishing and freelance journalism. Laurie has a BA in English/Liberal Arts from La Salle University and a MA in Teaching of English from Teachers College, Columbia University.

## The New Normal: Pressures on Technical Communication Programs in the Age of Austerity

Denise Tillery and Ed Nagelhout, eds. 2016. Amityville, NY: Baywood Publishing. [ISBN 978-0-89503-914-1. 238 pages, including index. US\$59.95 (softcover).]



*The New Normal: Pressures on Technical Communication Programs in the Age of Austerity* is a must-read for faculty and administrators of technical communication programs in America who feel the increasing pressure from the “more with less” mantra that pervades all academia. Additionally, practitioners in geographic regions

where technical communication programs are offered should read this book to better understand the nature of such programs today and think about how industry might better partner with these programs to continue a steady supply of qualified writers and editors.

As a part-time lecturer in technical communication, I’m obliquely aware of the budgetary and political constraints on the program. *The New Normal* helped me articulate the concerns that I was only aware of subconsciously and has given me ideas to suggest to the program director.

The editors skillfully selected chapters that represent a broad spectrum of technical communication programs. In this single volume, they represent graduate and undergraduate programs, new programs and existing ones, minors, certificates, online and face-to-face programs, state universities, and a small liberal arts college.

The authors treat the readers to a refreshing variety of topics from provocative perspectives. For example, author Dirk Remley analyzes the balance between instructor autonomy and consistency in the face of online learning management platforms. In “Googling Academe,” the authors lament that many universities are cutting costs by outsourcing their information technology (IT) infrastructure to corporations like Google and Microsoft—and the troubling conflict between end-user agreements and intellectual property rights—and the disappearance of personal Web space that the program relied on for student Web projects.

Not only do the authors identify several concerns about sustaining and growing technical communication

programs, but they offer specific advice. In “Frugal Realities,” the authors outline specific assignments for creating a “hacker pedagogy” and creating more resourceful students. In “Service-eLearning in the Online Classroom,” the authors outline specific program outcomes. In “Development in Technical Writing Programs,” the authors explain how to achieve a manageable work-life balance by breaking down the workload (and limiting the amount of time spent on each task)—with an example semester schedule.

Surprisingly, MOOCs (Massive Open Online Courses) did not factor as a major concern in this book. MOOCs are only mentioned at the end of the first chapter, which leads one to wonder if the attention they garnered a few years ago is really of no great concern in the age of austerity.

My only criticism is that many of the authors outline the brutality of salary cuts, hiring freezes, and layoffs to set the stage for how their programs adapted under pressure. While the severity of these demoralizing events cannot be understated and deserve attention, the reader may find it tedious to read without feeling like this is *Chicken Soup for the Professor’s Soul*. Admittedly, these points are foundational to the many splendid solutions the authors recommend.

### Michael Opsteegh

Michael Opsteegh is an STC Senior Member and a technical writer in the software and financial services industries since 2004. He is a lecturer in the technical communication program at Cal State Long Beach. Michael holds a master’s degree in English and is a Certified Technical Professional Communicator (CPTC).



## International Virtual Teams: Engineering Global Success

Pam Estes Brewer. 2015. Piscataway, NJ: IEEE Press. [ISBN 978-1-118-33900-8. 222 pages, including index. US\$49.95 (softcover).]



Dr. Brewer's book, *International Virtual Teams: Engineering Global Success*, builds on her earlier research on this topic and does a good job of combining academic research with practical tips for managing virtual teams.

The book's layout makes it easy to pull out core concepts, case studies, and guidelines. Chapter 9 provides instructor guidelines for designing training, though the content is more oriented toward a university classroom than corporate training. This content can easily be adapted to a corporate training environment.

Throughout *International Virtual Teams*, Dr. Brewer reinforces the concepts and guidelines with data in tabular and graphical form, making it easy to see how the concepts relate back to the data. For those of us who regularly manage or work on virtual teams, none of these findings are a surprise. For example, miscommunication occurs at about the same frequency with multicultural teams, but the consequences of that miscommunication are higher.

Like many books on teaming, her guidelines seem simple and obvious, but as anyone who works on teams knows, the devil is in the details, and this is particularly true for virtual teams. Her points are well taken about metacommunication early in the team-building phase and making sure you allow time for social communication and for understanding the flow of each person's work day. Forgetting to do these basics during the initial project setup will cost you time and money throughout the project as you battle unspoken expectations and greater misunderstanding.

My one criticism is that she implies that virtual teaming is a new thing. While the technology to support virtual teams has improved exponentially in the past 25 years, virtual teaming has been around for a long time, particularly in the technical fields. (ARPANET, for example, was an effort to facilitate data communication across a network of dispersed scientists.)

If you need data to convince your management to invest more time and training in developing and

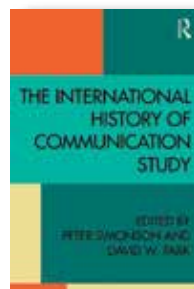
managing virtual teams, *International Virtual Teams* can help you present the data. You can use the case studies and core concepts to create an effective presentation to management.

### Katherine (Kit) Brown-Hoekstra

Katherine Brown-Hoekstra, of Comgenesis, LLC, is an STC Fellow, speaks at conferences worldwide, and has authored many articles on various topics related to technical communication and internationalization. She has a background in life sciences and more than 25 years of experience. She also coauthored a book on managing virtual teams. Her blog is [www.pangaeapapers.com](http://www.pangaeapapers.com).

## The International History of Communication Study

Peter Simonson and David W. Park, eds. 2016. New York, New York: Routledge. [ISBN 978-1-138-84603-6. 528 pages, including index. US\$44.95 (softcover).]



Many disciplines have contributed to the history of technical communication from psycholinguistics to sociology to behavioral psychology. A major contributor has been from journalism through the sub-specialty of technical journalism. Just as technical communication has broadened from technical writing (and technical journalism) to what we study today by adapting research results from other disciplines, so too has journalism. Students now study communication, including media studies, mass communication, and speech communication. Simonson and Park have assembled an anthology of 23 essays from 34 authors on the history of this discipline in *The International History of Communication Study* and divides them into 5 groups based on geographical regions: Europe, North America, Latin America, Asia, and Africa and the Middle East. They introduce each group with an overview of the history of communication studies in the area covered by the essays.

The goal of the essays is to explain how communication research may be useful for scholars and graduate students in communication, media, and journalistic studies through showing how they interact with and influence each geographic area. The focus is on



research after World War II and the essays have a basic pattern of discussing early researchers that helped the studies become important and then a general history of communication studies. The three fields that the essays cover for their geographic area are mass communication research/media studies, journalism and newspaper studies, and speech communication studies (that receive the least amount of coverage). All essays are written in English.

The collection's strengths lie in that it presents the history of communication in a variety of countries, and that the essays are thorough literature reviews of that history. Another strength that helps the reader understand how communication study has evolved is the comparisons between and among countries.

A weakness I find in the essays is that they do not discuss whether or not a particular view point is taught. And this approach could prove important in countries with strong central governments. How are students, in this example, to avoid such bias and retain neutrality? In literary classes, the teacher often announces and takes a specific interpretation viewpoint. For example, teachers may have their students read a number of novels for their mythic content.

For technical communicators interested in how these communication studies have developed and how they may be related to influences on technical communication, they will find the collection valuable even though none of the authors really discuss technical communication and its relationship to journalism, media studies, and speech communication. Those wanting an insight into how communication studies influence cross-cultural communication will also find the collection valuable when read from a cultural influence viewpoint.

So, while the collection has limited value for technical communicators, it is only when comparing how communication, as the editors define it, can influence technical communication.

### Tom Warren

Tom Warren is an STC Fellow, Jay R. Gould Award for Excellence recipient, and professor emeritus of English (technical writing) at Oklahoma State University, where he established the BA, MA, and PhD technical writing programs. Past president of INTECOM, he served as guest professor at the University of Paderborn, Germany.

## Communication and Emerging Media: What's Trending Now

Carie S. Lambert and Maribeth Schlobohm. 2015. Dubuque, IA: Kendall Hunt Publishing. [ISBN 978-1-4652-7459-5. 340 pages. US\$52.50 (softcover).]



Impressive is the word that came to mind when I saw the write up describing authors Carie Lambert and Maribeth Schlobohm. Schlobohm works as a teacher of professional and technical writing at the University of Texas. Lambert holds a PhD in technical communication and rhetoric from Texas Tech and also teaches at the University of Texas.

Together these two developed 10 impressive chapters in *Communication and Emerging Media: What's Trending Now*. The topics are a grab bag on the general topic of communication and emerging technologies. What ties the chapters together is each writer's chapter having a background of work at the University of Texas. Here is a glimpse at the topics with a focus on how emerging media influences communication: mobile as a force in the future, social communication, marketing communication, health communication, education and learning, cyberlaw, and ethics.

Health communication seemed to me an especially interesting topic. The authors of that chapter note if you Google *medicine* you will find over 80 million Web pages in about 0.32 seconds. If you Google *medicine* in about 0.28 seconds, you will see over 1 million Web pages. And the topic is not just big on the Web. It is big on Twitter, Facebook, Pinterest, Tumblr, and the like. Government websites also exist with examples including Center for Disease Control, Health.gov, Medicare.gov, National Institute of Health.

Emerging media becomes an important tool here not just to disseminate information but also for fundraising as with the recent ice bucket challenge raising money for ALS (amyotrophic lateral sclerosis).

What does the future hold? Could it be the ability to print an organ or personalized drugs? Will we continue with trends such as booking online and electronic medical records? Will telemedicine continue to improve and serve rural areas?

There are pros and cons to the use of emerging media regarding medicine. The related chapter covers

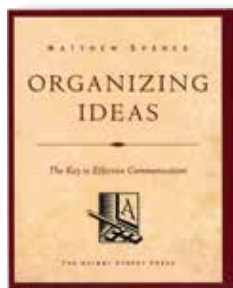
some and provides great food for thought. This holds true for the other sections of *Communication and Emerging Media*. If you have an interest in emerging media and education, you should find the book of interest. If you are a teacher, this book might be a great pick for your students.

### Jeanette Evans

Jeanette Evans is an STC Associate Fellow and active in the NEO community, currently serving on the newsletter committee. She holds an MS in technical communication management from Mercer University. Jeanette recently published an article, "Emerging Technologies: Where We Have Been and Where We Are Going" in STC's Intercom magazine.

## Organizing Ideas: The Key to Effective Communication

Matthew Spence. 2015. Portland, OR: The Quimby Street Press. [ISBN 978-1-495-98493-8. 198 pages, including index. US\$20.00 (softcover).]



Spence describes *Organizing Ideas: The Key to Effective Communication* as a cookbook, and this is true. It is a collection of recipes for producing effective business writing. But just as a well-written cookbook teaches the reader essential kitchen skills, using the Spence & Company

guide to decision-oriented communication will teach the writer essential business writing skills. I recommend adding it to your reference bookshelf.

This book is well-written, presents concepts clearly and simply, and has a layout that is unfussy, with just enough formatting to skim for major points in each chapter. The chapters build on the skill learned in the previous chapter.

Throughout the book, attention is paid to the usual best practices for business writing. The Spence method endorses plain language, simple sentence structures, and signposting important sections. It recommends putting technical details and databases into attachments instead of the document's body.

The Spence method uses the disciplines of rhetoric. The author argues that all business writing should

persuade the reader to make a decision or to take action. The Spence & Company method combines three rhetorical tools of persuasion: Logos (appeal to logic or reason); Ethos (appeal to character or trust); and Pathos (appeal to motivation or inspiration).

Reader needs are a frequent checkpoint through the guide. The Reader Profile is critical to this process as it identifies the primary and secondary decision-makers or readers.

*Organizing Ideas* uses the same structure for all business communications, customizing the structure to the target reader and communication type. The framework always has an Opening Statement (Why are you writing this document? What is your document about? How will you discuss your subject? What decision or action do you recommend?), a Body (all the data, issues, and conclusions that support your Recommendation), and a Summing Up (restate your position; recap your conclusion; repeat your recommendations.)

Worksheets are key tools in the Spence & Company method. There are worksheets for every type of business communication, from email and texting, through long and short memos and reports to slide deck presentations. Every worksheet is an outline of questions and answers (Q & A). Starting with the major sections—Opening Statement, Body, Summing Up—the writer works through the Q & A to gather the information needed for the communication. Instead of starting with a blank page, a writer using a worksheet can jump-start a document from outline to first draft.

A companion book, *Business Writing: The Good, the Bad, and the Ugly*, provides every type of blank worksheet including dozens of before and after sample documents that illustrate how the Spence method will improve the clarity of any communication.

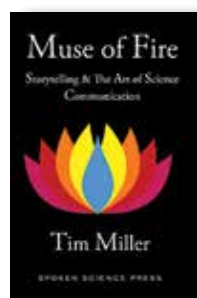
I adopted the email worksheet; it works! Responses are arriving sooner with better information. This is a useful, helpful book for business writers and technical communicators.

### Marcia Shannon

Marcia Shannon is an STC member and newly STC-certified writer (CPTC-Foundation). Her more than 30 years of business experience cover IT, mortgage, banking, and insurance. Marcia has written and taught procedures as well as provided user support. Currently, she writes and edits procedures and job aids, and coaches non-writer co-workers.

## Muse of Fire: Storytelling & The Art of Science Communication

Tim Miller. 2015. Manchester, CT: Spoken Science Press. [ISBN 978-0-996-94920-0. 220 pages. US\$15.00 (softcover).]



Whether you are a working scientist weighing in on matters of great public importance, or a researcher trying to explain your findings to editors or peers, your success will depend not just on what you know but on how well you communicate what you know.

Unfortunately, many scientists have a reputation for being poor communicators.

Tim Miller, a science communication consultant at the Alan Alda Center for Communicating Science at Stony Brook University, hopes to improve the situation. With *Muse of Fire: Storytelling & The Art of Science Communication*, he describes the various communication challenges and opportunities faced by working scientists and gives solid, practical advice for addressing them.

Miller traces poor science communication to a number of causes—failing to properly estimate the audience, a tendency to attribute confusion to the difficulty of the subject matter rather than to how it is presented, following poor models from seniors—and more generally to a lack of basic communication training in science curricula.

When faced with a communication opportunity, many scientists start by asking themselves “What should I talk about?” and then proceed to think up things to say about whatever holds their interest at the moment. This approach often leads to muddled presentations that are hard to follow.

Instead, Miller recommends the following strategy: Choose your impact; identify your audience; craft your message. For example, you might want to convince educated lay people to support a position on, say, global warming, legislators to support funding, or youngsters that science is interesting and would make a good career. After both your desired impact and your audience are clear in your mind, use them as guides to selecting your material and crafting your message.

Miller holds that another key point that is often missed by scientists is that most communication works best when framed as a story. Miller covers

basic narrative structure—a protagonist who wants to accomplish something important, faces obstacles, and succeeds (or fails) to overcome them—and shows how narrative structure and techniques apply to science communication. Further, he argues, framing your message as a narrative serves to engage your audience and helps it understand both the details and importance of your presentation.

Moving beyond organization, Miller covers the mechanics of presenting and offers valuable, practical advice on handling such things as giving slide presentations, designing posters, making videos, issuing press releases, and making use of online tools and social media.

Miller wraps up by offering strategies and guidance for handling thorny issues of public engagement and controversy such as those surrounding evolution and global warming.

Whether you are just starting your career or are an old hand seeking to better match your communication skills with your scientific expertise, *Muse of Fire* has much to offer.

### Patrick Lufkin

Patrick Lufkin is an STC Associate Fellow with experience in computer documentation, newsletter production, and public relations. He reads widely in science, history, and current affairs, as well as on writing and editing. He chairs the Gordon Scholarship for technical communication and co-chairs the Northern California technical communication competition.

## The Graphic Design Idea Book: Inspiration from 50 Masters

Stephen Heller and Gail Anderson. 2016. London, UK: Laurence King Publishing Ltd. [ISBN 978-1-78067-756-9. 128 pages, including index. US\$17.95 (softcover).]



*The Graphic Design Idea Book: Inspiration from 50 Masters* is designed to showcase a combination of themes, ideas, and styles used in graphic design. It tours artwork and design starting with the mid-20th century and continuing up to recent times. As expected of a graphic design book,

there are illustrations paired with every concept in the book.

Heller and Anderson took the approach that the best way to convey graphic design is to create a book where the works of graphic design leaders illustrate concepts to the reader. First, the authors created thematic groups such as “Experiment with design” and “Communicate a message” and placed the artwork and styles into each group. Each grouping contains several concepts, such as “white space,” “collage,” and “mood.” Every conceptual section contains a list of the artists featured in that section but does not contain an explanation as to why the grouping was created, or how the concepts and artists were chosen for that group. In turn, each concept is represented by a two-page spread featuring one page of commentary and one page of illustration by an artist whose work exemplifies the concept. For example, in the “Play with type and image” group, the concept of *tromp l’oeil* is first explained. The descriptive text explains the history of how *tromp l’oeil* evolved and how modern advertisements take advantage of such optical illusions to attract attention to their products. On the opposite page is the illustration of a 1962 shoe advertisement. The ad features a bus where the ad banner appears where the passenger’s legs and feet would be, giving the illusion that you are looking through the side of the bus at their shoes. The whole book follows this pattern so you can easily flip through looking for visual ideas and then read an explanation of the displayed technique.

Overall, *The Graphic Design Idea Book* is a fun introduction to the art of graphic design. The prose is clean and easy to read, and the illustrations are well-paired with their associated themes. It is not heavy or authoritative and is intended to both clarify ideas and to inspire artists. If you are looking for a good place to start with graphic design, this book is a good choice. While it won’t teach you to be an artist, it can help focus your existing artistic skills into established styles. Therefore, I recommend *The Graphic Design Idea Book* to anyone interested in learning how artwork can be used for commercial purposes and to anyone interested in a survey in the past 100 years of graphic art.

### Timothy Esposito

Timothy Esposito is an STC Associate Fellow with over 15 years of technical communication experience. He is currently president of the STC Philadelphia Metro Chapter. Before becoming president, Timothy was chapter VP, treasurer, webmaster, and scholarship manager.

## Research for Designers: A Guide to Methods and Practice

Gjoko Muratovski. 2016. London, England: Sage. [ISBN 978-1-4462-7514-6. 242 pages, plus index. US\$41.00 (softcover).]



*Research for Designers: A Guide to Methods and Practice* targets design students as well as professional designers who want to incorporate research into their design process. Although aimed specifically at designers, the book can also serve as a practical introduction to basic research methodologies for any member of a design team, including developers, technical writers, and management.

Muratovski argues that design has traditionally been seen as an artistic practice “driven by intuition” rather than a practical research-based approach to problems; in today’s market, however, design is increasingly interdisciplinary and designers must learn new skills to compete (p. 10). Chapters 1 and 2 briefly introduce Muratovski’s approach and provide an overview of the historical role of design and the benefits and challenges of cross-disciplinary design research. Chapter 3 explains “Research Essentials,” such as determining a research problem and developing a research question. The remaining chapters introduce various research types (qualitative, quantitative, visual, and applied). Finally, the book explains how to present your findings and craft a design brief or report.

*Research for Designers* is well organized and broken into manageable sections and subsections that make it easy to find specific information; numbered lists, bullet points, illustrations, and real-world examples make the methodologies easily digestible. A brief summary follows each chapter. As an introductory textbook, Muratovski covers a wide breadth of research types; because of this, it sometimes lacks depth and specificity in certain areas.

Some of the book’s most useful content applies across the design team. If the team is new to incorporating design research into its process, Chapter 3 will prove useful. Muratovski emphasizes the need to formulate a clear research statement that everyone—expert or not—can understand: “If you cannot explain in simple terms what the problem is that you are trying to address, the chances are that you still do not have a



good understanding of what the problem is” (p. 29). This chapter also provides an overview of the research methodologies and criteria for applying each type to your research problem. Qualitative research, for example, is best when you are dealing with “unfamiliar situations or issues,” in other words, understanding the complexity of the problem, while quantitative research simplifies problems and is best applied for testing an existing theory rather than formulating a new one (p. 37). Muratovski also recommends combining multiple methodologies depending on your specific research question.

The author’s chapters on research methodologies offered numbered steps that outline the process from formulating the topic to presenting findings. Although not in-depth enough to provide a comprehensive plan for large-scale or academic research, this bare-bones approach is sufficient for small-scale commercial or educational projects.

I would recommend *Research for Designers* to anyone looking to incorporate research into their development process for the first time. It is a well-organized introduction to research planning and methodologies that can be implemented by a cross-disciplinary design team.

### Bonnie Shamp Winstel

Bonnie J. Shamp Winstel is an STC member and a technical writer for a small software company in Huntsville, Alabama. She received her master’s degree in English and Technical Communication at the University of Alabama-Huntsville in May 2013.

## Photoshop Tricks for Designers: How to Create Bada\$\$ Effects in Photoshop

Corey Barker. 2016. Berkeley, CA: Peachpit Press. [ISBN 978-0-13-438657-7. 182 pages, including index. US\$29.99 (softcover).]



I always marveled at my company’s graphic designers, “You are magicians!” How did they come up with those fantastic ideas for our book designs? Above all, what magic did they conjure up to bring those ideas to life?

Photoshop Hall of Famer Corey Barker has an answer: they knew the kinds of tricks that he can teach you to make you, too,

a Photoshop wizard. He assumes that you have at least intermediate expertise in Photoshop. If, for example, you don’t know how to “apply a Drop Shadow layer style” (p. 5), you’re not the intended audience. You might learn something by attempting a few steps, but you’ll find yourself continually baffled and frustrated. You know you indeed have the necessary skillset if you’re one of the “We” in statements like “We all know that you can bevel text in Photoshop using layer styles” (p. 170). If this is you, you have here a cookbook of instruction and inspiration that will send you into creative Nirvana.

The book is not cumulative in structure. Rather, you have 36 illustrated projects in nine chapters organized by general type of effect: type, commercial, graphic, photo, texture, light, color, Hollywood-style, and 3D. You can launch into any project without looking at other pages, although Barker cross-references related information in other projects.

The projects are nothing short of astounding. My favorites are creating double exposures to turn cityscapes into parts of the body, turning photos into brushes used to blend colors, and applying texture to images to create 3D text.

Barker heightens the inspiration by continually using words like *cool* and *clever*, and many steps are “tricks”—appropriate for the creator of the heavily attended Down & Dirty Tricks seminars. He aims to teach you that “You can achieve a lot more than you think, once you know what you can do” (p. 163). Beyond this, he wants you to experiment on your own, varying the choice of filters and slider settings and devising your own “tricks.”

The index, which points mostly to Photoshop features, is helpful in its organization and depth. Helpful also are the many downloadable supplementary files: pictures (JPEGs and TIFFs), brushes and brush toolsets, and Photoshop PSD files. You can also use your own files.

Are you a working designer, artist, photographer, or even serious hobbyist who wants to use Photoshop in ways you never dreamed of? If you are, this is your book.

### Avon J. Murphy

Avon J. Murphy is a technical editor in western Washington. A retired college professor and government writer, he is an STC Fellow, a contractor, and principal in Murphy Editing and Writing Services, specializing in computer and Web technologies. Avon served as book review editor for Technical Communication for 17 years.



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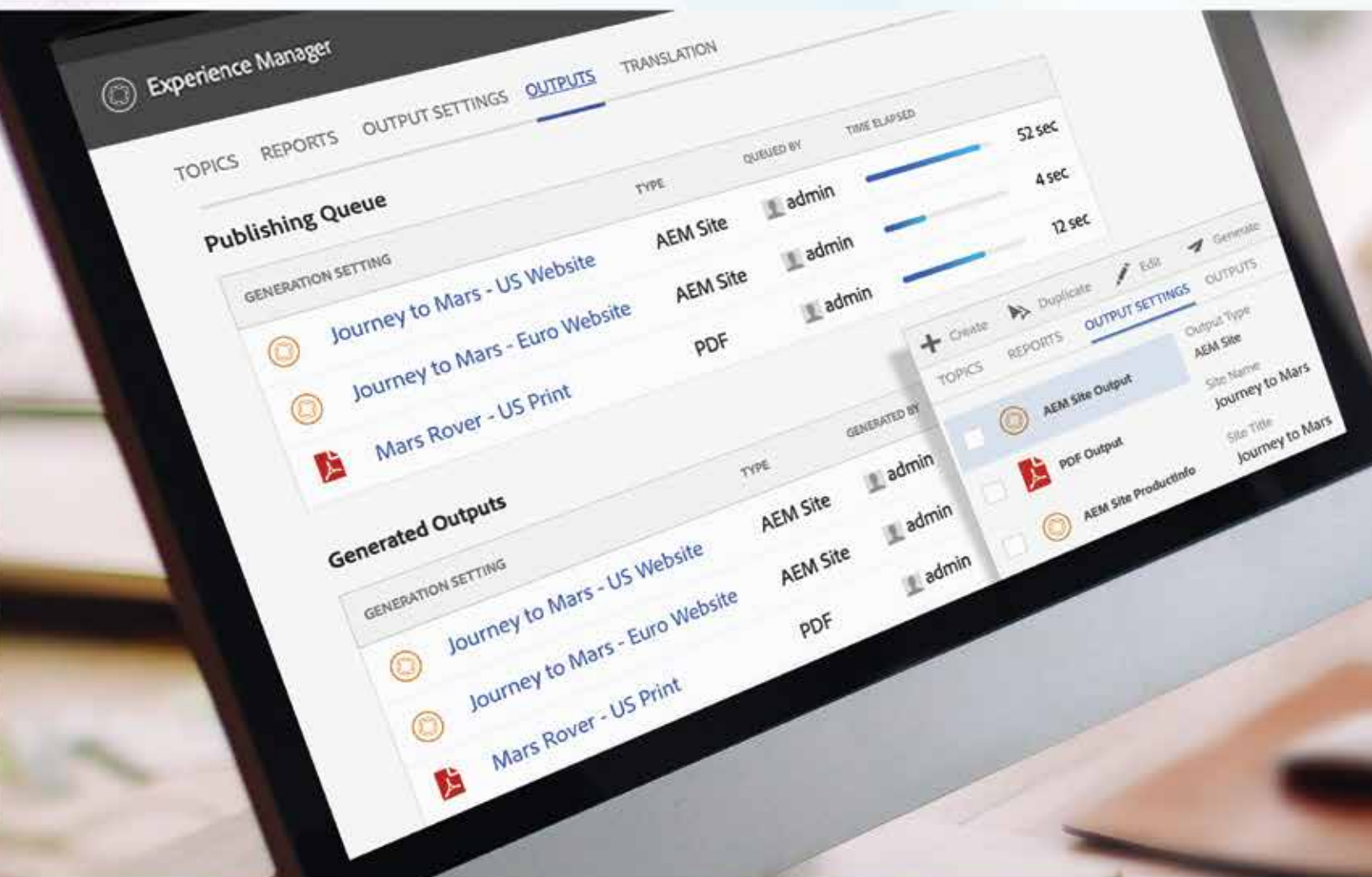
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Lyn Gattis, Editor

The following articles on technical communication have appeared recently in other journals. The abstracts are prepared by volunteer journal monitors. If you would like to contribute, contact Lyn Gattis at [LynGattis@MissouriState.edu](mailto:LynGattis@MissouriState.edu).

"Recent & Relevant" does not supply copies of cited articles. However, most publishers supply reprints, tear sheets, or copies at nominal cost. Lists of publishers' addresses, covering nearly all the articles we have cited, appear in *Ulrich's international periodicals directory*.

## Collaboration

### **Look before you lead: Seeing virtual teams through the lens of games**

Robinson, J. (2016). *Technical Communication Quarterly*, 25(3), 178–190. doi: 10.1080/10572252.2016.1185159

"This study investigated virtual teams playing *World of Warcraft* to better understand how traditional leadership theories applied to virtual worlds and to identify the most valuable leadership traits. Raid members completed surveys that assessed their leadership capability under the competing values framework. In keeping with previous scholarship, the findings indicate that successful virtual teams value roles from task-based leadership and a factor analysis revealed that the behavioral complexity leadership theory operates differently in virtual environments."

Lyn Gattis

## Communication

### **E-mail and face-to-face organizational dissent as a function of leader-member exchange status**

Turnage, A., & Goodboy, A. (2016). *International Journal of Business Communication*, 53(3), 271–285. doi: 10.1177/2329488414525456

"The purpose of this study was to examine whether leader-member exchange status (in-group vs. out-group) of employees explains differences in organizational

dissent (i.e., articulated, latent, displaced) via e-mail as opposed to face-to-face. Participants were 166 full-time employees working in a variety of organizations. Results indicated that out-group employees were more likely to express articulated dissent through e-mail, whereas in-group employees were more likely to express articulated dissent in person. The results of this study suggest that the quality of the supervisor-subordinate relationship is important in determining how contradictory opinions are communicated in an upward manner via e-mail. Communicating these subordinate opinions in person to a supervisor, instead of sending an e-mail, may be indicative of a better working relationship. Furthermore, e-mail may be a positive venue for out-group employees, previously unwilling to question management, to dissent."

Katherine Wertz

### **Factors impacting the intention to use emergency notification services in campus emergencies: An empirical investigation**

Ada, S., Sharman, R., Han, W., & Brennan, J. (2016). *IEEE Transactions on Professional Communication*, 59(2), 89–109. doi: 10.1109/TPC.2016.2527248

"This study investigates the factors influencing students' intentions to use emergency notification services to receive news about campus emergencies through short-message systems (SMS) and social network sites (SNS)." The authors had two "research questions: (1) What are the critical factors that influence students' intention to use SMS to receive emergency notifications? (2) What are the critical factors that influence students' intention to use SNS to receive emergency notifications?" The authors "conducted a quantitative, survey-based study

that tested [their] model in five different scenarios, using logistic regression to test the research hypotheses with 574 students of a large research university in the northeastern US.” The implications of their findings are directed toward emergency managers and “suggest how to more effectively manage and market the service through both channels. The results also suggest using SNS as an additional means of providing emergency notifications at academic institutions.”

Rhonda Stanton

**The impact of virtual customer community interactivity on organizational innovation: An absorptive capacity perspective**

Roberts, N., & Dinger, M. (2016). *IEEE Transactions on Professional Communication*, 59(2), 110–125. doi: 10.1109/TPC.2016.2561118

“Organizations are increasingly investing in virtual customer communities that reduce communication barriers between organizations and customers. However, little is known regarding how virtual customer communities might affect a firm’s learning and innovation activities.” Researchers investigated “the extent to which interactivity in virtual customer communities influences the relationship between a firm’s absorptive capacity (the ability to identify, assimilate, and apply external knowledge) and the extent to which a firm develops incremental and radical innovations.” The authors tested their “model with a quantitative survey-based research design that involves 102 firm-sponsored virtual customer communities.” The authors note a limitation of the study was the use of “data collected from a single respondent to measure both [the] independent and dependent variables.” The authors learned “absorptive capacity is positively related to incremental innovation and negatively related to radical innovation. Furthermore, virtual customer community interactivity moderates the relationship between absorptive capacity and incremental innovation.” They conclude that “virtual customer communities are transforming communication relationships between organizations and customers in ways that influence a firm’s learning and innovation activities.” They “recommend that future research examine how virtual

customer communities affect organization-customer communication channels.”

Rhonda Stanton

**A study of the employment of denial during a complex and unstable crisis involving multiple actors**

Bamber, M., & Parry, S. (2016). *International Journal of Business Communication*, 53(3), 343–366. doi: 10.1177/2329488414525454

“The authors review the use of denial through a complex and unstable crisis: the *Deepwater Horizon* tragedy in the Gulf of Mexico. Denial is typically viewed as a binary response—‘we did not do this’—with a binary intended outcome—‘and therefore we are not to blame.’ The authors argue that this interpretation is overly simplistic. They found that Transocean and Halliburton executed a strategy consisting of distancing and (counter) attack to shift blame, whereas BP pursued a strategy dominated by compassion and ingratiation intermixed with carefully used denial to share blame. This form of blame sharing is a hybrid of denial and acceptance. BP accepted responsibility but argued that others were responsible too. The authors’ analysis also shows that deny response options were restricted or relaxed dependent on situational and intertextual context. They find that the tone of the involved parties’ releases became significantly more aggressive as the situation developed toward its legal conclusion and as they responded to one another’s progressively more hostile releases.”

Katherine Wertz

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## Design

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**Calculating line length: An arithmetic approach**

Peña, E. (2016). *Visible Language*, 50(1). [online] [doi: none]

“This paper introduces an arithmetic formula for the calculation of text line length (also referred to as line width) for roman alphabet from 1) the length of the

alphabet in lowercase, 2) a value for the desired character density and 3) a mathematical constant. A short-range study with this formula has shown a margin of error of less than 5% in common serified text typefaces. The potential application of this formula in both print and digital editorial products could be diverse, from the approximate calculation of pages in a book to the establishment of control parameters in responsive web pages. Moreover, this formula would allow designers to make decisions about formal aspects on reading devices based on principles of readability and reading experience.”

Lyn Gattis

### **Exhibiting information: Developing the information age gallery at the science museum**

Blyth, T. (2016). *Information & Culture*, 51(1), 1–28. doi: 10.1353/lac.2016.0001

“There is very little published literature on the display of computing technology in museums and galleries. This article reviews a variety of displays, from the early 1970s to the 1990s, to show how computing and communication technologies shifted from a taxonomic approach that inferred an element of progression to displays that take a more socially and culturally embedded approach. The article argues that by changing their focus away from computing per se to considering the history of sociocultural information networks, museum professionals can create more engaging experiences for visitors while reflecting the current concerns of the sociology of technology and historiography. Using insights drawn from the development of the *Information Age* gallery at the Science Museum in London, the article argues that while the shift toward information and communication networks is not without conceptual challenges, it brings to the fore the importance of infrastructure, the role of users in the coconstruction of networks, and the challenge of software in display.”

Edward A. Malone

## Education

### **Client-based pedagogy meets workplace simulation: Developing social processes in the Arisoph case study**

Balzotti, J., & Rawlins, J. (2016). *IEEE Transactions on Professional Communication*, 59(2), 140–152. doi: 10.1109/TPC.2016.2561082

“Immersive pedagogies—including real-world or client-based projects, case studies, and simulations—have long been used to encourage student problem-solving, analytical thinking, and teamwork in professional communication. Building a connection to the real world has real challenges, however, for both instructors and students.” This paper describes “an online client-based simulation course” in which engineering students worked for a full semester in a fictional technical communication consulting firm (Arisoph) to produce deliverables for a real-world engineering client. “Initial student reactions to the course show an increased understanding of workplace communication and a greater motivation to produce the best possible product for the client. [The authors] hope that long-term studies will show significant carryover of those attitudes into students’ careers.”

Rhonda Stanton

### **Students’ affective learning in a technologically mediated writing and speaking course: A situated learning perspective**

Gaffney, A. L. H., & Kercsmar, S. E. (2016). *Journal of Business and Technical Communication*, 30(3), 322–351. doi: 10.1177/1050651916636371

“Situated learning theory postulates that the environment in which learning occurs is foundational to understanding the outcomes of that learning. Taking classes in a nontraditional classroom, therefore, might have a noticeable effect on learning outcomes. This study examines three structures of the same general education course to understand the potential impact of mediated learning on students’ public speaking and writing apprehension and self-efficacy. Although situated learning theory suggests that the three structures (face-to-face,

partially face-to-face, and fully online) should demonstrate differences, the results of this study are mixed, suggesting a complicated picture for situated learning's ability to speak to differences based on technology use while highlighting the differences in how such technology might affect oral skills versus written skills. The application of situated learning principles to technologically mediated courses demonstrates the need to consider the interplay between environment and content."

Sean C. Herring

### **Students' perceptions of oral screencast responses to their writing: Exploring digitally mediated identities**

Anson, C. M., Dannels, D. P., Laboy, J. I., & Carneiro, L. (2016). *Journal of Business and Technical Communication*, 30(3), 378–411. doi: 10.1177/1050651916636424

"This study explores the intersections between facework, feedback interventions, and digitally mediated modes of response to student writing. Specifically, the study explores one particular mode of feedback intervention—screencast response to written work—through students' perceptions of its affordances and through dimensions of its role in the mediation of face and construction of identities. Students found screencast technologies to be helpful to their learning and their interpretation of positive affect from their teachers by facilitating personal connections, creating transparency about the teacher's evaluative process and identity, revealing the teacher's feelings, providing visual affirmation, and establishing a conversational tone. The screencast technologies seemed to create an evaluative space in which teachers and students could perform digitally mediated pedagogical identities that were relational, affective, and distinct, allowing students to perceive an individualized instructional process enabled by the response mode. These results suggest that exploring the concept of digitally mediated pedagogical identity, especially through alternative modes of response, can be a useful lens for theoretical and empirical exploration."

Sean C. Herring

### **Toward a model of UX education: Training UX designers within the academy**

Guiseppe, G., & Beecher, F. (2016). *IEEE Transactions on Professional Communication*, 59(2), 153–164. doi: 10.1109/TPC.2016.2561139

"Increased demand for user experience (UX) designers requires new approaches to teaching and training the next generation of these professionals. [The authors] present a model for building educational programs within academia that train job-ready designers." The model they suggest "necessitates a working knowledge of the UX process, the systematic use of sound principles during the design of digital products and services. The model also requires a pedagogical approach that puts learners in a position to solve real problems and that treats them as apprentices on their way to competency. . . . [The authors] provide tips for understanding core UX competencies, developing partnerships with UX practitioners, and deploying UX education courses and programs. . . . Though the barriers to producing sufficient numbers of well-trained UX designers are significant, the combined ingenuity of devoted professionals in both academia and industry can be leveraged to create sound educational opportunities for UX learners from all walks of life."

Rhonda Stanton

## **Ethical issues**

### **Ghostwriting prevalence among AMWA and EMWA members (2005 to 2014)**

Hamilton, C. W., & Jacob, A. (2016). *AMWA Journal*, 31(1), 3–11. [doi: none]

"Ghostwriting, defined as undisclosed substantial contributions by medical writers, is considered to be unethical by the American Medical Writers Association (AMWA), the European Medical Writers Association (EMWA), and other professional associations. To determine the prevalence of ghostwriting among medical writers coincident with educational campaigns, [the authors] initiated a Web-based, self-administered, confidential survey of AMWA and EMWA members



in 2005 and repeated it in 2008, 2011, and 2014. [The authors] focused on manuscripts to which survey participants had made substantial contributions and now report final findings from all surveys. . . . [A] 44% decrease in the rate of manuscripts with undisclosed contributions between 2005 and 2014 is encouraging, but the 34% rate of ghostwriting among medical writers remains unacceptable. While these findings should *not* be generalized to the overall prevalence of ghostwriting in the literature (because survey participation was restricted to AMWA and EMWA members who made substantial contributions to manuscripts), [the authors'] findings suggest the need for further collaborative efforts to promote transparency and to conduct research about how to achieve best practices in medical publication."

**Magdalena Berry**

### **"Good" grief: Subversion, praxis, and the unmasked ethics of grieving guides**

Beale, M., McKittrick, M., & Richards, D. (2016). *Technical Communication Quarterly*, 25(3), 191-201. doi: 10.1080/10572252.2016.1185160

"This article uses genre-field analysis (GFA) to examine *Minecraft* grieving guides: user-generated documentation that operationalizes destructive approaches to gameplay. Grieving guides promote subversive praxis while forwarding a utilitarian ethical system that values hedonistic *schadenfreude*, running counter to morals of cooperation championed by most *Minecraft* players. Published in online forums where debates over conflicting praxis continue, these guides explicitly address, rather than mask, the negotiation of ideological values and ethical systems within a community."

**Lyn Gattis**

### **The impact of review environment on review credibility**

Mackiewicz, J., Yeats, D., & Thornton, T. (2016). *IEEE Transactions on Professional Communication*, 59(2), 71-88. doi: 10.1109/TPC.2016.2527249

This article investigates the influence of "online consumer reviews of products . . . [on] consumers' purchasing decisions." The authors conducted an online survey that "exposed respondents to the same review text with different star ratings (4-star and 2-star) in two types of sites: brand and retailer." Participants were asked "to evaluate the review's credibility, trustworthiness, and expertise. In half of the exposures, participants evaluated a review in the site of a high-credible company (Apple or Amazon), and in the other half of exposures, participants evaluated a review in the site of a midlevel-credibility company (Dell or Walmart)." Results indicated that "[c]redibility strongly correlated with both trustworthiness and expertise. Participants rated 4-star reviews as more credible than 2-star reviews on high-credibility sites, but star ratings had no impact on midlevel credibility sites." The authors "found no difference between ratings of reviews displayed on brand and retailer sites for midlevel-credibility companies but a small difference between reviews displayed on brand and retailer sites for high-credibility companies." The conclusion: "Professional communicators looking to identify credible reviews should attend to review valence, or the positivity or negativity of a review. When managing user-generated product reviews, they should try to make credible content more noticeable to review users."

**Rhonda Stanton**

## Health communication

### **Mobile health care applications: Authorship, regulatory challenges, and the role of medical writers**

Trauth, E. (2016). *AMWA Journal*, 31(2), 51–54. [doi: none]

“Mobile medical and health applications (apps) have revolutionized health care; consumers, patients, and health care practitioners use these smart-phone and mobile communication device-enabled applications to manage their health in ways that can put health care, quite literally, in their own hands. From apps that can help track weight, caloric intake, and exercise to apps that provide important information about the effects of medications on breast milk, these programs have the potential to guide people to make improved health-based decisions in their lives. Other apps are designed for health care professionals to help them with . . . complex issues. . . . Because of the diversity of app types and audiences and the need for credible health care communication, the expanding app market is of potential importance to a wide range of medical writers and editors, including those who work on medical-device regulatory documents, patient education resources, or continuing education materials designed for researchers or practicing health care professionals. This article provides an overview of the mobile health market, the regulatory environment, standards of review within the industry, and opportunities to improve mobile health apps by the inclusion of medical writers and editors in app development.”

**Magdalena Berry**

### **Pictograms: Can they help patients recall medication safety instructions?**

Del Re, L., Vaillancourt, R., Villarreal, G., & Pouliot, A. (2016). *Visible Language*, 50(1). [online] [doi: none]

“The effectiveness of pictograms to enhance the recall of information through a review of the literature was evaluated. . . . A search was conducted using ‘Pictogram’ AND ‘Recall’ on PubMed, SCOPUS, and Web of

Knowledge databases. Additional searches were conducted on the above-mentioned databases and on Google Scholar using various combinations of key words ‘pictorial’, ‘picture’, ‘aid’, ‘memory’ and ‘medication’. The main inclusion criterion was recall measurement. . . . Nineteen articles were analyzed. Ten studies measured immediate/short-term recall; five compared immediate/short-term to long-term recall; and four measured only long-term recall. Eight measured cued recall of pictograms and eleven measured free recall. Three studies failed to support pictograms as means to enhance recall for all subjects regardless of demographic characteristics. Recall abilities of elderly participants were lower than young individuals. Literacy level, education level, prior knowledge, and cultural familiarity are factors that may influence pictogram recall. . . . Pictograms enhance patients’ recall of information. Professionals using pictograms in healthcare settings should consider 1) educating patients about pictograms; 2) providing patients with pictorial cues; 3) measuring free recall with ‘true’ method; 4) assessing patient’s reading, education level, and prior knowledge of pictograms; 5) using text and pictograms; 6) and having special considerations for the elderly.”

**Lyn Gattis**

### **Provider documentation of patient education: A lean investigation**

Shipman, J. P., Lake, E. W., Van Der Volgen, J., & Doman, D. (2016). *Journal of the Medical Library Association*, 104(2), 154–158. doi: 10.3163/1536-5050.104.2.012

“The study evaluates how providers give patient education materials and identifies improvements to comply with Meaningful Use (MU) requirements. Thirty-eight patient-provider interactions in two health care outpatient clinics were observed. Providers do not uniformly know MU patient education requirements. Providers have individual preferences and find gaps in what is available. Accessing and documenting patient education varies among providers. Embedded electronic health record (EHR) materials, while available, have technical access barriers. Providers’ EHR skills and knowledge levels contribute to non-standardized patient education delivery.”

**Yvonne Sanchez**

## Information management

### ***A framework for understanding information ecosystems in firms and industries***

Cortada, J. W. (2016). *Information & Culture*, 51(2), 133–163. doi: 10.7560/IC51201

“Information is the glue that holds together organizations and their industries. Thus understanding the information ecosystems and their infrastructures is essential if we are to appreciate how companies, government agencies, and entire industries function. Yet the role of information in companies and industries remains understudied. This article defines concepts historians should understand, discusses challenges faced in the study of business information, and suggests approaches.”

Edward A. Malone

## Instructions

### ***Performative rituals for conception and childbirth in England, 900–1500***

Jones, P. M., & Olsan, L. T. (2015). *Bulletin of the History of Medicine*, 89(3), 406–433. doi: 10.1353/bhm.2015.0064

“This study proposes that performative rituals—that is, verbal and physical acts that reiterate prior uses—enabled medieval women and men to negotiate the dangers and difficulties of conception and childbirth. It analyzes the rituals implicated in charms, prayers, amulets, and prayer rolls and traces the circulation of such rituals within medieval English society. Manuscript records from the Anglo-Saxon period to the late Middle Ages offer evidence of the interaction of oral and written means of communicating these rituals. Certain rituals were long-lived, though variants were introduced over time that reflected changing religious attitudes and the involvement of various interested parties, including local healers, doctors, and medical practitioners, as well as monks, friars, and users of vernacular remedy books. Although many of those who recommended or provided

assistance through performative rituals were males, the practices often devolved upon women themselves, and their female companions or attendants.”

Edward A. Malone

## Language

### ***Learning how to speak like a “native”: Speech and culture in an online communication training program***

Hart, T. (2016). *Journal of Business and Technical Communication*, 30(3), 285–321. doi: 10.1177/1050651916636359

Communicating effectively with English as a Second Language (ESL) students is an integral part of teaching in both online and on-campus environments. “This article examines the oral communication training that took place in Eloqi, a virtual language-learning community. Eloqi (a pseudonym) was a for-profit start-up that built and operated a proprietary Web-based, voice-enabled platform connecting English-language learners in China with trainers in the United States. While it existed, Eloqi’s unique platform was used to deliver short, one-on-one lessons designed to improve students’ oral English communication skills. Using the ethnography of communication and speech codes theory, a theoretical-methodological approach, the author presents an analysis of the speech code, or code of communicative conduct, employed at Eloqi. This code of English logic, which Eloqi’s community members associated with native English speech, comprised six locally defined rules for oral English speech; namely, speech had to be organized, succinct, spontaneously composed rather than rehearsed, original and honest, proactively improved, and positive. This article discusses the significance of this code, particularly as it pertains to cultural communication, and concludes with some implications for researchers and practitioners in business and technical communication.”

Sean C. Herring

## Professional issues

### **Community of practice and professionalization perspectives on technical communication in Ireland**

Cleary, Y. (2016). *IEEE Transactions on Professional Communication*, 59(2), 126–139. doi: 10.1109/TPC.2016.2561138

“Research on the field [of technical communication] in Ireland is limited.” [Using] “a theoretical framework that combines symbolic interactionism and communities of practice theories,” the author investigated the extent to which “technical communicators in Ireland operate as a community of practice” and the “steps . . . Irish technical communicators are taking toward professionalization.” Findings from a survey, focus groups, and interviews “indicate that Irish technical communicators exhibit traits of communities of practice (such as joint enterprise and shared repertoires). They also identify with their job title and practice. A key finding is that some Irish technical communicators have a keen appetite for community involvement. This enthusiasm notwithstanding, barriers to professionalization include low visibility of the role in Ireland, limited evidence of professionalizing activity, and the potential for career stagnation.”

Rhonda Stanton

### **Developer discourse: Exploring technical communication practices within video game development**

McDaniel, R., & Daer, A. (2016). *Technical Communication Quarterly*, 25(3), 155–166. doi: 10.1080/10572252.2016.1180430

“This study examines the discourse style of managers, developers, engineers, and artists working for an independent game development studio. Fourteen employees were interviewed and then the results were coded and analyzed using an exploratory, single-case case study methodology. The authors argue that the texts, tactics, and technologies used by these professionals reveal insights into both the practical, outcome-oriented dimensions of technical communication within the games industry as well as deeper cultural characteristics of this community.”

Lyn Gattis

### **Game design as technical communication: Articulating game design through textbooks**

DeAnda, M. A., & Kocurek, C. A. (2016). *Technical Communication Quarterly*, 25(3), 202–210. doi: 10.1080/10572252.2016.1185161

“This article examines the framing of the designer’s role in game development in textbooks published and circulated over the past decade. The authors investigate the discursive ways coding is downplayed within game design texts as a means of promoting design as a form of creative expression. This speaks to ongoing tension in the games industry of coding and technology versus art. The authors argue that, in their presentation of game design, leading textbooks attempt to frame the field as one of artistry and technical practice, presenting game design as a type of technical communication. The authors ultimately consider the potential and pitfalls of considering game design as a technical communication field and suggest that this framing presents lens for considering the recently professionalized field.”

Lyn Gattis

### **Introduction: Games in technical communication [special issue]**

deWinter, J., & Vie, S. (2016). *Technical Communication Quarterly*, 25(3), 151–154. doi: 10.1080/10572252.2016.1183411

“Recently, research into the intersection of computer games and technical writing has been increasing, with more conference presentations and publications interrogating communication within the computer game complex. . . . The call for more research is clear, and technical communication is well positioned to interrogate these systems and create new texts because the field already works at the intersection of the technical and the symbolic—and games are both. . . . Games provide frameworks for interaction. They are rule systems that are teleological in nature. However, games themselves exist within complex cultural and economic structures, which require scholars to interrogate the actors and discourses that influence game creation, consumption, and deployment in game- and non-game-like arenas. And in this, technical communication methods—actor-network theory, humanistic approaches



to technical communication, genre ecologies, to name a few—illuminate games as a form of technically mediated communication and also technical systems with human actors. What [the editors] hope to explore in this special issue is the broad range of technical communication that occurs in games, from game production practices to game play itself and the multiple ways that players interact within these systems. . . .”

Lyn Gattis

**Reconsidering power and legitimacy in technical communication: A case for enlarging the definition of technical communicator**

Henning, T., & Bemert, A. (2016). *Journal of Technical Writing and Communication*, 46(3), 311–341. doi: 10.1177/0047281616639484

“This article considers how issues of power and legitimacy in technical communication are connected to clearly defining what a technical communicator does. An articulation of what technical communicators do can grant the field power in presenting a united front to employers with respect to the value technical communicators bring to the workplace. So as to leverage the power and legitimacy associated with articulating what technical communicators do, this article reviews and revises the Bureau of Labor Statistics *Occupational Outlook Handbook (OOH)*’s definition of technical communicator. To effectively revise the *OOH*’s definition, this article reviews academic and practitioner scholarship in technical communication and the administration of technical and professional writing programs. It demonstrates that concerns about practical skills, conceptual skills, and flexibility are related to legitimacy and power. These concerns can be used as criteria to evaluate and revise the *OOH*’s definition of technical communicator. In closing, the article discusses the benefits associated with the revised definition and how these benefits are related to issues of power and legitimacy in the field.”

Anita Ford

## Research

**“A scientific view of the whole”: Adam Smith, indexing, and technologies of abstraction**

Binder, J. M., & Jennings, C. (2016). *English Literary History*, 83(1), 157–180. doi: 10.1353/elh.2016.0001

“This essay compares methods of mapping the contents of texts from different historical periods by examining Adam Smith’s *The Wealth of Nations* (1776) from two perspectives: that of its 1784 index and that of a topic model generated from the text. [The authors] contend that this sort of comparative interpretation of models demonstrates a new way to consider computational methods not as heralding a break from print genres like the index but, instead, as participating in a longer tradition of practices that have sought to make massive amounts of text accessible for readers, whether they are human or machine.”

Edward A. Malone

## Scientific writing

**In science communication, why does the idea of the public deficit always return? Exploring key influences**

Suldoovsky, B. (2016). *Public Understanding of Science*, 25(4), 415–426. doi: 10.1177/0963662516629750

“Despite mounting criticism, the deficit model remains an integral part of science communication research and practice. In this article, [the author] advance[s] three key factors that contribute to the idea of the public deficit in science communication, including the purpose of science communication, how communication processes and outcomes are conceptualized, and how science and scientific knowledge are defined. Affording science absolute epistemic privilege, [the author] argue[s], is the most compelling factor contributing to the continued use of the deficit model. In addition, [the author] contend[s] that the deficit model plays a necessary, though not

sufficient, role in science communication research and practice. Areas for future research are discussed.”

**Yvonne Sanchez**

### ***The lure of rationality: Why does the deficit model persist in science communication?***

Simis, M. J., Madden, H., Cacciato, M. A., & Yeo, S. K. (2016). *Public Understanding of Science*, 25(4), 400–414. doi: 10.1177/0963662516629749

“Science communication has been historically predicated on the knowledge deficit model. Yet, empirical research has shown that public communication of science is more complex than what the knowledge deficit model suggests. In this essay, [the authors] pose four lines of reasoning and present empirical data for why [they] believe the deficit model still persists in public communication of science. First, [they] posit that scientists’ training results in the belief that public audiences can and do process information in a rational manner. Second, the persistence of this model may be a product of current institutional structures. Many graduate education programs in science, technology, engineering, and math (STEM) fields generally lack formal training in public communication. [The authors] offer empirical evidence that demonstrates that scientists who have less positive attitudes toward the social sciences are more likely to adhere to the knowledge deficit model of science communication. Third, [the authors] present empirical evidence of how scientists conceptualize ‘the public’ and link this to attitudes toward the deficit model. [The authors] find that perceiving a knowledge deficit in the public is closely tied to scientists’ perceptions of the individuals who comprise the public. Finally, [they] argue that the knowledge deficit model is perpetuated because it can easily influence public policy for science issues. [They] propose some ways to uproot the deficit model and move toward more effective science communication efforts, which include training scientists in communication methods grounded in social science research and using approaches that engage community members around scientific issues.”

**Yvonne Sanchez**

### ***The whiteboard revolution: Illuminating science communication in the digital age***

Mar, F. A., Ordovas-Montanes, J., Oksenberg, N., & Olson, A. M. (2016). *Trends in Immunology*, 37(4), 250–253. doi: 10.1016/j.it.2016.02.004

“Journal-based science communication is not accessible or comprehensible to a general public curious about science and eager for the next wave of scientific innovation. [The authors] propose an alternative medium for scientists to communicate their work to the general public in an engaging and digestible way through the use of whiteboard videos. [The authors] describe the process of producing science whiteboard videos and the benefits and challenges therein.”

**Yvonne Sanchez**

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## Technology

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### ***Do users’ perceptions of password security match reality?***

Ur, B., Bees, J., Segreti, S. M., Bauer, L., Christin, N., & Cranor, L. F. (2016). In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems 2016* (pp. 3748–3760). New York: Association for Computing Machinery. doi: 10.1145/2858036.2858546

“Although many users create predictable passwords, the extent to which users realize these passwords are predictable is not well understood. [The authors] investigate the relationship between users’ perceptions of the strength of specific passwords and their actual strength. In this 165-participant online study, [the authors] ask participants to rate the comparative security of carefully juxtaposed pairs of passwords, as well as the security and memorability of both existing passwords and common password-creation strategies. Participants had serious misconceptions about the impact of basing passwords on common phrases and including digits and keyboard patterns in passwords. However, in most other cases, participants’ perceptions of what characteristics make a password secure were consistent with the performance of current password-cracking tools. [The authors] find large variance in participants’ understanding of how passwords may be attacked,

potentially explaining why users nonetheless make predictable passwords. [They] conclude with design directions for helping users make better passwords.”

**Yvonne Sanchez**

## Usability

### **Developing SMASH: A set of SMARtphone's uSability Heuristics**

Inostroza, R., Rusu, C., Roncagliolo, S., Rusu, V., & Collazos, C. A. (2016). *Computer Standards & Interfaces*, 43, 40–52. doi:10.1016/j.csi.2015.08.007

“The smartphone market is nowadays highly competitive. When buying a new device, users focus on visual esthetics, ergonomics, performance, and user experience, among others. Assessing usability issues allows improving these aspects. One popular method for detecting usability problems is heuristic evaluation, in which evaluators employ a set of usability heuristics as guide. Using proper heuristics is highly relevant. In this paper [the authors] present SMASH, a set of 12 usability heuristics [including help and documentation] for smartphones and mobile applications, developed iteratively. SMASH (previously named TMD: Usability heuristics for Touchscreen-based Mobile Devices) was experimentally validated. The results support its utility and effectiveness.”

**Yvonne Sanchez**

### **Metacognition and system usability: Incorporating metacognitive research paradigm into usability testing**

Ackerman, R., Parush, A., Nassar, F., & Shtub, A. (2016). *Computers in Human Behavior*, 54, 101–113. doi: 10.1016/j.chb.2015.07.041

“There is an agreement that perceived usability is important beyond actual effectiveness of software systems. Perceived usability is often obtained by self-reports provided after system use. Aiming to improve summative usability testing, [the authors] propose a

methodology to enhance in-depth testing of users' performance and perceived usability at the task level. The metacognitive research approach allows detailed analysis of cognitive processes. Adapting its methodologies, [the authors] propose the Metacognitive Usability Profile (MUP) which includes a comprehensive set of measures based on collecting confidence in the success of each particular task and triangulating it with objective measures. [They] demonstrate using the MUP by comparing two versions of a project management system. Based on a task analysis [they] allocated tasks that differ between the versions and let participants (N = 100) use both versions. Although no difference was found between the versions in system-level perceived usability, the detailed task-level analysis exposed many differences. In particular, overconfidence was associated with low performance, which suggests that user interfaces better avoid illusions of knowing. Overall, the study demonstrates how the MUP exposes challenges users face. This, in turn, allows choosing the better task implementation among the examined options and to focus attempts for usability improvement.”

**Yvonne Sanchez**

### **Usability evaluation of a new text input method for smart TVs**

Choi, Y. M., & Li, J. (2016). *Journal of Usability Studies*, 11(3), 110–123. [doi: none]

“Smart TVs are becoming an increasingly important multimedia device for home entertainment. A smart TV is a platform that provides access to many types of media and services such as games, the Internet, social networking sites, and TV programs. One of the most important interactions between users and these platforms is the ability to effectively enter and edit text. The purpose of this study was to test a new approach for smart TV text entry that combines a touch pad and virtual keyboard interaction. A prototype was created and tested against existing methods (a simple remote control, a touch pad, and a physical keyboard). Twenty college students were recruited to perform a usability test with each of the four different input methods. Participants performed a text entry task and a text edit task on each device. The results indicate that combining

a virtual keyboard with touch pad type functionality for text entry and editing can lead to faster text entry and faster text editing.”

**Ginnifer Mastarone**

### **A usability score for mobile phone applications based on heuristics**

Von Wangenheim, C. G., Witt, T. A., Borgatto, A. F., Nunes, J. V., Lacerda, T. C., Krone, C., & de Oliveira Souza, L. (2016). *International Journal of Mobile Human Computer Interaction*, 8(1), 23–58. doi: 10.4018/IJMHCI.2016010102

“Mobile phones are becoming the most widespread personal consumer device. Yet, offering mobile access anywhere, anytime for anybody poses new challenges to usability. So far there is little research on how to customize usability heuristics to the specific characteristics of mobile phone applications. Therefore, this article presents a set of tailored usability heuristics [including help and documentation as one of the measurement heuristics] based on a systematic literature review. In order to facilitate the usage of these heuristics, the authors design and validate a measurement instrument (checklist) and scale. The checklist has been validated through an empirical study in which the results of 247 heuristic evaluations have been statistically analyzed using Item Response Theory. Based on the results, the measurement items have been calibrated and a standardized measurement scale has been constructed. The results can be used to measure usability of mobile phone applications from early on in the design process, and, thus, facilitate evaluations in a cost-effective way.”

**Yvonne Sanchez**

### **Usability testing: Too early? Too much talking? Too many problems?**

Hertzum, M. (2016). *Journal of Usability Studies*, 11(3), 83–88. [doi: none]

“Usability testing has evolved in response to a search for tests that are cheap, early, easy, and fast. In addition, it accords with a situational definition of usability, such as the one propounded by ISO. By approaching usability from an organizational perspective, this author argues that usability should (also) be evaluated late when the system is ready for field use, that usability professionals should be wary of using the thinking-aloud protocol, and that they should focus more on the achievement of effects than on problem detection.”

**Ginnifer Mastarone**

## **Writing**

### **10/10 would review again: Variation in the player game review genre**

Thominet, L. (2016). *Technical Communication Quarterly*, 25(3), 167–177. doi: 10.1080/10572252.2016.1185158

“Using a move-strategy genre analysis of 180 video game user reviews posted to six websites, this article describes typical characteristics of the genre as well as significant variations in genre construction. By creating new audiences and purposes for the genre, emerging genre variants have opened critical debates within the user community about genre change. Ultimately, the author argues that tracing genre variations could have implications for how technical communication scholars and practitioners support the needs and goals of user-generated genres.”

**Lyn Gattis**